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The bustling border city of Niagara Falls has voted down a proposition to construct a \$100,000 new city hall, by a vote of 560 to 60. This looks like a step backward, for a new city hall is much needed.

The Council of Oklahoma City, Ok. Ter., is wiser in its day and generation than many of more mature age. The promoters of a street railway modestly (!) requested a perpetual franchise, without recompense to the city. It received one for twenty years. If that had been the Council of other larger and older cities that could be mentioned, the perpetual franchise would have been cheerfully handed out.

What has come over the hitherto liberal spirit of the Columbus (O.) Council that it cannot send a duly organized commission upon a tour of investigation to solve so important a question as the sewer problem which confronts that city? Is it a case of "sour grapes," or is there a fear that the tour will be simply a "junktet?" We wonder if it will refuse to vote an appropriation for its own expenses to the next meeting of the L. of A. M.? Hardly! And yet, if the state of the exchequer will stand the expense of but one party, we believe it would be more beneficial to the city of Columbus to solve its sewer problem and send its commission than for a delegation to go to Charleston in December.

A Vicious Park Regulation.

A Buffalo (N. Y.) contemporary has offered a sensible and ringing editorial against a "tomfool" regulation of the Board of Park Commissioners. The rule in question prohibits the use of the parks after ten o'clock at night. Four young people, who were found in the park after that hour, were arrested the other night.

What are the parks for, if not for use? And especially during the heated term, when they furnish about the only means the vast majority of a large city has for getting a breath of fresh air. It is quite likely that the park privileges are abused by a few, but a well governed police force such as Buffalo boasts of should be able to prevent any gross or wholesale abuse of such privileges. Chief William S. Bull would be one of the first to resent any such imputed weakness of his well equipped and disciplined force.

When the Park Board passed such a regulation it must have been suffering from a temporary aberration of the mind. It is "a dog in the manager" sort of rule, for the common people, for whose benefit the parks were supposedly created, are banished from them after ten p. m.!

Doubtless the intelligent citizens of Buffalo will instill sufficient modern ideas in regard to the liberal and proper management of parks into the aggregate gray matter of the Park Board to insure a speedy rescinding of so vicious a regulation.

Color Vindicated.

Some time ago charges of malfeasance in office were trumped up against Controller Bird S. Coler. The matter was made public while Mr. Coler was in the West. When his attention was called to the sensational dispatch he telegraphed to Governor Roosevelt to cause an immediate investigation to be made.

None who knew the Controller doubted his innocence for a moment. The most thorough investigation was conducted by the Attorney General of the state, and, after a careful consideration of all the facts, the charges have been dismissed.

Women as Germ Scavengers.

A woman entered the office of the president of the "Cleaner Dallas League" the other day and, pointing to her skirts, indignantly said:

"This is what I get for believing in your reform League! When I left home an hour ago, this skirt was clean. Now look at it! I am disgusted with your reform."

The president said the skirt was, indeed, a sight to behold, being in an unspeakably filthy condition. And he noticed that it touched in front and dragged behind. The woman confessed that she had not held it up, but allowed it to sweep along the pavement. The president replied:

"If all the women would do as you have done, we would not be obliged to increase our sweeping force."

It is most amazing, in the eyes of the sterner sex, that women should so carelessly permit their skirts drag along the sidewalk, gathering all sorts of filth, dirt and disease germs. It has been, for a long time, a positive menace to public health. By frequent tests well known scientists, both at home and abroad, have demonstrated that the most deadly disease germs are found on the skirts of women who allow them to trail in the street. And it has been shown to be a fruitful source of contagion and spread of disease.

Our Health Officers would materially add to the healthfulness of their cities if they would secure the passage of an ordinance prohibiting the wearing of long dresses that drag on the street.

Before "City Government" reaches its readers the amended charges against Mayor Van Wyck, for complicity in the Ice Trust matter, will be served on him. Governor Roosevelt's action all along has been wise and deliberate, refuting the charges so often made that he is hot-headed and impetuous. The outcome will be watched with keen interest.

The next meeting of the American Society for Municipal Improvement will take place at Milwaukee the latter part of this month. No society in the municipal field has done more to better the practical side of civic conditions, and, therefore, every municipality would find it a profitable investment to pay the expenses of its city engineer to attend the convention.

Glasgow Not Exempt from Taxation.

The improbable tale has repeatedly come to our ears that the municipal plants of Glasgow were so profitably conducted that real and personal property were exempt from taxation; that the revenues from the plants more than paid the expenses of the city. In order to verify or refute the statement the editor of "City Government" wrote to the Lord Provost and received the following reply:

"It is not the case that the various municipal plants in Glasgow are operated at so large a profit that the city does not require revenue from any other source. A mistaken notion to this effect has been for some time in circulation in America, and perhaps you will be good enough to contradict it in your journal. We have not yet reached such an ideal state of civic administration as to be exempt from taxation, although the various departments of the public service are at present in a very satisfactory condition."

Elsewhere will be found an interesting description of the street cleaning department, garbage disposal and municipal farms of Glasgow. This will not fail to interest street-cleaning officials, nor is it without special interest to the general reader.

The Cause of Municipal Failure.

It will be interesting and profitable for those of our readers who are particularly concerned in the betterment of the administration of municipal plants to read "Some Experiments with Municipal Plants" as related by Prof. G. D. Shepardson in this number of "City Government."

The Editor has visited many municipal plants, in large and small cities, during the past year and a half and, almost, without exception, he has found conditions which faithfully tally with the description of Mr. Shepardson. This by no means warrants the conclusion that municipal ownership is a total failure, for, despite the bad management and the corruptible methods of politicians, the city receives larger benefits than it would under private control. The opponents of municipal ownership are doing a splendid service toward the improvement of municipal ownership by so persistently pointing out the cause of failures under city control. If the opponents of public ownership continue their useful instruction along the same lines, and if its friends also lend a helping hand in correcting the evils, there is good reason to hope for a quick solution of the problem.

"City Government" does not pose as an advocate of municipal ownership, but rather as a herald of facts on both sides, having the conviction that it can better serve its readers by so doing than by taking sides. Such a course, fairly maintained, will ensure clearer vision and enable it to point out the fallacies on both sides.

From an extensive and careful investigation and close observance over a wide field, "City Government" is convinced that the causes of failure in the operation of municipal plants are incompetency, politics and the indifferent and lazy citizen, and the greatest of these is the indifferent and lazy citizen.

The American Juggernaut

is the electric motor car. It is a veritable demon in its disregard for human life. Its speed and destructive qualities are increased by an avaricious corporation, a lot of careless motormen and a surging mass of impatient passengers who begrudge the half-minute spent in a stop to receive additional human freight. All are implicated in the unnecessary trolley-car accidents, which are a matter of daily record in all large cities. The fatalities and injuries resulting, in the aggregate, mount up to startling proportions and furnish evidence of the shameful, rapacious and criminal propensity of the modern spirit.

The editor of "City Government" recently obtained reports from reliable sources of the number of persons killed or maimed, during a period of twenty days, in most of the cities of New York, New Jersey, Pennsylvania, Delaware, Ohio, Michigan, Indiana, Illinois, Kentucky, Tennessee, Maryland, Virginia and West Virginia—thirteen states. Result: 43 killed outright; 104 seriously injured; no account taken of the slightly injured.

The territory covered includes the most populous portion of the country, but only about one-sixth of the area. It is not unreasonable to suppose that, taking all of New England—covered with a network of trolley lines—together with the other states not included in the above list, there were enough additional casualties to bring the totals of killed and wounded up to 100 and 200, respectively, for a period of twenty days. Thus the American Juggernaut is killing people at the rate of five a day and seriously injuring others at the rate of ten a day; or 1,825 killed and 3,650 injured per year!

And all to what purpose? That the grasping, conscienceless corporation may increase its revenues and that the impatient passenger may "get there," for neither will brook interference or delay from a protesting public. The personal element is obliterated in the corporation. The general managers seldom holds a large amount of stock. He is simply the head of a machine for creating dividends for hungry stockholders, who continually goad him on to greater achievements. To maintain his own position he must overwork his employees and cut their pay to the minimum; he must please a public clamoring for rapid transit and, therefore, makes a running time schedule which the employee must keep or lose his place. So, if the motorman runs his car on time, the human sacrifice is inevitable.

from a protesting public.

Some street railway corporations are decent and reasonable in their treatment of both employees and public, but most of them are despicable, and it is only the latter that we inveigh against. If the cars were run only at the rate of speed prescribed by the law—the rate seldom exceeding six miles an hour—the accidents would be greatly diminished. But here the grinding corporation usurps its power, driving its Juggernaut through the streets at a speed of from ten to twenty miles an hour, displaying an utter disregard for human life.

When a street railway corporation has a limited franchise and favors to ask, it assumes a "meek-as-Moses" air; receives all complaints with obsequious explanations and promises better things. But, on the other hand, when the corporation has a cinch on the city in the form of a perpetual franchise, or other blanket privileges,—as in New York, Philadelphia, Albany, Troy and scores of other cities—it listens to all complaints with Sphinx-like silence or autocratic hauteur. It is not "in business for its health," therefore, with an arrogance born of its power, it continues to kill and maim.

The difference between the American and the Hindoo Juggernaut is that the former denies to its victims the right of choice, killing them "nolens volens," while the latter slaughters only its devotees who choose to let it crush out their lives.

The chief executives and legislators of our cities should prevent, by every legitimate means at their command, a continuation of the "slaughter of the innocents."

Personals.

—H. R. Pollard is the new City Attorney of Richmond, Va.

—Dr. Lively is the energetic Health Officer of Oak Cliff, Texas.

—W. H. Venable is the new Corporation Counsel of Norfolk, Va.

—Dr. J. T. Williams has been appointed Health Officer of Bristol, Va.

—Dr. W. R. Baker is the newly elected Health Officer of Detroit, Mich.

—W. E. Cutshaw has been re-elected City Engineer of Richmond, Va.

—H. L. Smith has been re-elected Superintendent of the Water Department of Norfolk, Va.

—Col. Henry L. Stone has been chosen City Attorney of Louisville, Ky., to succeed himself.

—The Council of Bristol, Va., has chosen J. W. Mart as its presiding officer for the ensuing year.

—Frank Callman of Bristol, Va., has been reappointed Street and Water Commissioner for another term.

—Mayor William G. Irwin, of Hartwell, O., has resigned because of the breach of faith of the Board of Aldermen.

—Mayor Cornelius T. Driscoll, of New Haven, Conn., has announced his intention of standing for re-election.

—Alfred M. Martin, Jr., has been elected Mayor of Augusta, Ga., to fill out the unexpired term of the late Mayor Robbe.

—Director of accounts Cott, of Columbus, O., is reported seriously ill at the Battle Creek Sanitarium, Battle Creek, Mich.

—Messrs. Ebel and Turpin have been chosen as presiding officers of the common and select branches of the Council of Richmond, Va.

—Dr. S. O. Giffin, formerly a prominent member of the Columbus Council, recently suffered a severe injury to his spine. At last accounts he was improving.

—Charles E. Bolling has been chosen to succeed himself as Superintendent of Water Works of Richmond, Va., and W. P. Knowles as Superintendent of the Gas Works.

—Mayor Thomas Taggart, of Indianapolis, who figured so prominently before the Democratic convention at Kansas City, has been appointed chairman of the Democratic campaign committee.

—Benjamin T. August has been re-elected City Clerk of Richmond, Va., without opposition. Mr. August has served over thirty years as a city official. He has never missed a meeting; never had a vacation in all that time.

—Mayor Fleischman, of Cincinnati, does not approve of itinerant street preachers. He has issued orders prohibiting the practice. His objection is to the custom which most street preachers have of taking a collection.

—A lot of gamblers from New York city made a descent upon Seabright, N. J., proposing to run their business to suit themselves. Mayor Packer gave them a warm reception and they have departed sadder and wiser men; thanks to the energetic chief executive.

—Mayor Charles A. Robbe, of Augusta, Ga., passed out of this life July 8, after an illness of sixteen hours. Mayor Robbe was born at Hancock, N. H., in 1833, went South when a young man finally settling in Augusta. Here he enlisted as a private in the Confederate Army in 1862, receiving promotion several times, holding the rank of Captain at the surrender at Appomattox. His career has been a busy and useful one and his death sincerely mourned by the whole city.

—H. G. Peters is the new City Attorney of Bristol, Va.

—Mayor George H. Clark of Sacramento, Cal., was presented with a beautiful loving cup by citizens of Stockton on July 2, 1900.

—Mayor James A. Johnson, Vice-President of the League of American Municipalities, of Fargo, N. D., is working to have the 1901 meeting of the League in his city.

—Mayor William C. Maybury, of Detroit, was recently unanimously nominated for Governor of Michigan on the Democratic ticket. The nomination was made by acclamation.

—City Clerk Kane, of Holyoke, Mass., has favored "City Government" with a copy of the "Municipal Register" of his city. Besides the Mayor's message, annual reports, etc., there is a list of jurors compiled. Another good feature is a roster of city officials for each year since its incorporation as a city.

—The citizens of Findlay, O., are having a little good natured sport at the expense of Mayor Charles E. Watson. The Mayor recently purchased a new piano, at the same time giving a testimonial about a former piano he had used for eight years. The city Board of Equalization looked into the matter and failed to find a piano listed on the Mayor's tax returns. He was charged up with back taxes on the piano for eight years, and as his testimonial said the "piano was just as good the eighth year as the first," it was held at full value for the full term. He had to pay.

Referendum Here and in Switzerland.

[Tribune, Chicago.]

Those who advocate the referendum and point to its success in Switzerland as a proof of its wisdom do not seem to understand that the conditions in this country and in the little republic are entirely different. Attention is called to the differences by a Swiss writing to the editor of the "Milwaukee Sentinel." In the first place, Switzerland has a territory only one-third as large as that of Wisconsin and a population of only 3,000,000, while the United States is 200 times as large as Switzerland, without counting Alaska, which is alone forty times as large. In Switzerland the referendum is an outgrowth of a system of local government which corresponds to the New England town meetings and is possible in small communities, but whose result in large communities has been shown well in the operations of the town government system in Chicago. In Switzerland the people are in close contact with each other and their interests are not so diversified as here. In the United States there would be involved an enormous expense in holding referendums, and experience in voting on constitutional amendments shows that few people would take the trouble to acquaint themselves with the laws to be voted upon. The Swiss referendum is most conservative in its tendency. For instance, the last referendum was on the question of adopting a plan of compulsory sick and accident insurance similar to that in Germany. The measure was voted down by a decisive majority.

Fifty Cents a Copy will be paid for a few copies of City Government, August and November, 1896.

The Salvage Corps.

[Dispatch, Pittsburg.]

The recent and disastrous mercantile fires have had the effect of reviving measures for establishing a salvage corps. That subject has been frequently discussed by "The Dispatch," and its importance in lessening the loss by fires has been fully pointed out.

A salvage corps should be organized and put in active operation. It should have the recognition and encouragement of the city. It should have official authority to take possession of goods endangered by fire and rescue from loss all that is possible. It should share the discipline and authority of the fire department in order to act in unison with it. And the expense of maintaining the corps should be borne by the insurance interests.

The work of such a corps would be practically that of rescuing from loss goods covered by insurance. What it would save from loss therefore it would save for the underwriters. There is a theory that whatever a city provides in the line of lessening loss will be compensated for by the lessening of insurance rates. But unfortunately that theory is not verified by experience.

Pittsburg has a splendid fire department which has given tragic proof of devotion to its duty. It has an ample water supply, and in these essentials for fire extinction it ranks well with other cities of the country. Yet—while fully recognizing the unfortunate fact that the insurance interests have been hard hit in business fires of late—we must also take notice of the fact that on a great class of property which has shown no such unfortunate results, the residences of the people, Pittsburg is paying rates from 100 to 150, and in some cases 200 per cent. above the rates in other towns no better equipped. So far as can be judged from the outside these high rates on dwellings come down from a time twenty years ago, when Pittsburg's water supply was deemed hazardous, but there has been no reduction in rates commensurate to the radical improvements in this respect.

Even with regard to the unfortunate commercial fires which have clearly made the insurance business unprofitable to shareholders this year there is room for inquiry whether the underwriting interests have not their share of responsibility. It is a cogent question whether both in their interests and the interest of the public they might not in their rates make a more decided discrimination between the buildings that are not fireproof, those which profess to be fireproof, and those which are really fireproof. It is indisputable that insurance rates should pay for the full hazard with legitimate expenses. But that proposition further suggests a question whether it might not be profitable in the line of expenses to put more money into intelligent and active inspection and less into the large item of brokers' commissions.

These are vital questions for the insurance experts. But with regard to a service which would work so directly for lessening the losses to insurance companies it is plainly one for the protection and authority of the city, coupled with the condition that its expenses shall be borne by the interest directly benefited.

Then I began to think that it is very true which is commonly said, that one-half of the world knoweth not how the other half liveth.—Rabelais.

Convention Dates.

Secretaries of Municipal Associations, Civil Engineers' Societies, Fire and Police Conventions, Electrical Associations, and of all other associations relating to any phase of municipal work will confer a favor on "City Government," by sending dates of annual and quarterly gatherings for record under this caption. The Editor would, also, be pleased to receive advance copies of all subjects discussed.

AUGUST.

16.—The general meeting of the American Institute of Electrical Engineers, to be held in Philadelphia on May 16, will adjourn to meet in Paris in joint session with the British Institution of Electrical Engineers.

21-24.—New York State Firemen's Association, Syracuse, N. Y.

28.—American Society for Municipal Improvement, Milwaukee, Wis.

SEPTEMBER.

12-13.—New Jersey State Firemen's Association, Atlantic City, N. J.

22-26.—National Prison Association, Cleveland, O.

25-27.—International Association of Municipal Electricians, Pittsburg, Pa.

26-28.—Virginia State Firemen's Association, Richmond.

OCTOBER.

1-5.—American Public Health Association, Indianapolis, Ind.

2-6.—Pennsylvania Firemen's Association, New Castle.

9-12.—International Association of Fire Engineers, Charleston, S. C.

DECEMBER.

12-15.—League of American Municipalities, Charleston, S. C.

General Items.

Toledo, O., is to have a new city hall.

A proposition is on foot to connect the cities of New York and Brooklyn by two tunnels.

Pittsburg, Pa., and Spokane, Wash., contemplate a thorough revision of their charters.

St. Vincent's hospital of New York has lately installed an electric automobile ambulance.

The Detroit City Council is considering plans for improving its conduit system for electric and other wires.

Hamilton, O., is considering a proposition to put all wires underground on certain of its business streets.

The road inspectors of Jackson, S. D., have filed the modest request with the town board that each one of them be furnished with an automobile. It will save their walking and enable them to go over their respective routes once a day.

The city of Chambersburg, Pa., has been much annoyed of late by having buildings set on fire by flying sparks from passing locomotives. It has served a notice on the railway authorities to put spark arresters on its locomotives, or be held responsible for all damage by fires caused by sparks.

For many years the push cart trader has been a familiar, and, many times, an annoying, sight on Fulton street, New York city. His doom is sealed and his day passed, for Mayor Van Wyck has signed an ordinance which banishes the push-cart from Fulton and many other streets in the down-town business section.

AUTHORITY TO REMOVE BILL-BOARDS.

Certain bill-boards in Toledo, O., had been declared a nuisance and detrimental to public health. Health Officer Gresh was uncertain about his authority to remove them and asked for the opinion of City Solicitor Brailey, who replied:

"The statutes of Ohio have conferred upon the Board of Health ample authority in cases of this kind. I refer you to Section 2,128 of the revised statutes, and recommend that you follow Sections 2,126 and 2,129."

TELEPHONE COMPANY LOSES SUIT.

The city of Richmond, Va., has won another victory in its suit against the Southern Bell Telephone Company. Some years ago the Council revoked the charter of the company and ordered it to remove its poles and wires from the streets. This it refused to do and Judge Goff granted an injunction restraining the city from interfering with the company. He claimed that the company was protected by Federal statutes. The Supreme Court reversed Judge Goff's decision and remanded the case to the lower court to ascertain if the company had any rights under the state statutes or municipal ordinance. Judge Simonton held that it had no such rights. An appeal was taken to the United States Court of Appeals and Judge Simonton was sustained.

GAMBLING DEVICES TO BE DESTROYED.

Mayor Farley, of Cleveland, O., is earnestly opposed to gambling of every form and description, and, since his election, has been employing all legitimate methods to suppress the evil. His crusade has been directed against the petty gambling devices of merchants, many of which are dressed in sheep's clothing; the slot machines of every variety; and the more extensive "lay-out" of the professional.

The police dragnet has been in operation for some time, under the urgent direction of the Mayor, and several captures of slot machines and other devices have resulted. The Mayor was for destroying them at once, but was restrained from doing so by the questioning of the city's authority so to do. The Law Department has rendered an opinion that the law so authorizes.

CIVIL SERVICE FOR THE LIBRARY.

Recently Mayor Comstock, of Spokane, Wash., secured the adoption of an ordinance which extends civil service regulations so as to include the public library.

The civil service provision allows the Library Commission to appoint one or more apprentices, who will have to serve at least four months without pay. All appointments to the regular staff will be made from these apprentices. This gives a decided advantage in getting the most competent persons who will attend to the library business in a skillful way.

Other provisions of the new ordinance include a scale of wages for the assistant librarian. The assistant will start on \$40 per month the first year, with an increase of \$10 per month for each of the two following years. As the present assistant has already worked into her second year, she will receive the \$50 salary as soon as the measure goes into effect.

The changes also give the librarian \$75 per month, an increase of \$25 over that which she has been paid.

The second assistant librarian will receive \$25 instead of \$20, as heretofore.

A FIFTY-YEAR FRANCHISE.

The City Council of La Porte, Ind., has granted a fifty-year franchise to the La Porte & Michigan City Railroad Company. A Chicago trust company will finance the road to the amount of \$250,000, and the franchise stipulates that it shall be in operation within six months, and that the work of construction shall be begun within thirty days.

A FIVE-CENT TELEPHONE RATE.

The Oakland County (Mich.) Telephone Company is now at work making arrangements for exchanges in all of the towns of the county. Manager Martin appeared before the Holly Mutual Company and arrangements are nearly completed for the transfer of that company to the Oakland company. The toll rate from Holly to Detroit is now 55 cents since the Michigan company advanced rates on June 1. The franchises of the Oakland company call for a five-cent rate between all towns in this county. The Holly people propose to send their Detroit messages to Pontiac for 5 cents, and then have them repeated over the lines of the New State Telephone Company for an additional ten cents. They think that in this manner they can beat the octopus. The Oakland county exchange is to be in operation here October 1.

INDIANAPOLIS IMPROVEMENT DECISION.

The Supreme Court, of Indiana, has decided that the provisions of the charter of Indianapolis, relating to assessments for improvements, are constitutional. The chief objections to the law, as made in the complaint, were that it does not provide for a sufficient hearing, that it disregards the special benefit theory and that it authorizes the taking of property without due process of law, and without compensation therefor.

On all these points the ruling is against the property owner, and in favor of the law. The question is, not whether the usual method followed is fair, but whether the law authorizes or requires the use of an unfair method. The court holds that two distinct hearings are provided for. Work on several hundred thousand dollars' worth of improvements will be commenced at once. It has been held up by this litigation for months.

COMPETITION FOR TELEPHONE FRANCHISE.

There is lively telephone competition at Ft. Wayne, Ind., between the Bell and the Home companies. The Central Union (Bell) a few days ago made an offer of \$100,000 for a thirty-five-year franchise, but the proposition was informal. Now, however, it offers outright \$70,000, and the Home Company, which is operating under a charter that expires in 1903, is willing to pay the city a lump sum of \$75,000 for the thirty-five year's franchise rather than a per cent. of its gross earnings, as under the present ordinance. The companies are bitter rivals, and are fighting for every inch of vantage ground. One of the conditions of the payment of \$70,000 cash for a franchise is that there shall be no limitation as to rates and no restriction as to the streets which shall be occupied. To this liberal franchise the City Council objects, and it is not probable that either offer will be accepted.

MARKS FOR CITY EMPLOYEES.

Civil Service Commissioner Ela. of Chicago, is hard at work on a system for marking employees of the city by which they will be given merit marks for good work and demerits for bad. The employee falling below a certain average will be discharged, while the one having the highest mark in any class will be the man for promotion.

BIDDING MUST NOT BE RESTRICTED.

Chief Assistant Corporation Counsel McGrath of Detroit, Mich., has written an opinion for the committee on ordinances declaring that an ordinance requiring the union label to be placed on all the city's printed matter would be void. A petition that such an ordinance be passed was presented to the Council by the Allied Printing Trades Council and is now in the hands of the committee.

BILL-BOARD REGULATIONS.

Chicago has passed a bill-board ordinance which prohibits the erection of any such boards of more than 100 square feet superficial area, and says they must be of incombustible material, provides that they must be 25 feet back from the street line, not more than ten feet high, and with three feet between their base and the ground. In boulevards no boards can be put up without the consent of the owners of three-quarters of the frontage on both sides of the street in the block. Boards now standing and not complying with these conditions must pay a rental to the city of 50 cents a foot for a year.

BICYCLISTS PAY ROAD TAX.

Port Huron, Mich., by a recent action of its Common Council, has entered upon a new departure in the caring of its roads. The city has a bicycle ordinance which imposes a license fee of \$1 on riders and upon which payment permission is granted to ride under certain restrictions on nearly all the sidewalks in the city along unpaved streets. The Council has now ordered that all money received from bicycle licenses shall be placed in a special fund to be used exclusively for the construction of side paths along such streets as the Council may determine.

DETROIT'S BI-CENTENNIAL.

The City of Detroit was founded 199 years ago last month. Mayor Mayberry, very appropriately, in a proclamation to the people of that city, calls attention to the desirability of commemorating the two hundredth anniversary, a year hence, by suitable public ceremonies, and that the present is not too early to begin planning for such an event.

He makes other timely suggestions by opening the way for private beneficence. Of the memorials, which might be so erected during the year, he mentions the following:

1. The marking of the outlines of the old city, at a cost of \$5,000.
2. If practicable, a statue of the founder of the city, to cost from \$15,000 to \$25,000.
3. A memorial fountain with grouping of figures, illustrative of the history of the city, from \$25,000 to \$50,000.
4. Memorial arch, spanning Woodward avenue, to cost, depending upon embellishments, from \$100,000 to \$200,000.

HITCHING POSTS REMOVED.

For many years the public square of Mansfield, O., has been surrounded with hitching posts for the accommodation of farmers who "come to town to do their trading." Many citizens of that thrifty city have felt the thrill of the new century and have raised a storm of protest against these obnoxious posts longer remaining to disfigure the square and connect them with the primitive past. As a result the posts have given way to the march of progress, and now the farmers threaten to boycott the town.

IOWAN SMOKE CONSUMERS.

Half the state of Iowa is underlaid with coal, says Rollin Lynde Hartt in the August Atlantic. What matter, then, that the ladies of Des Moines must sew their ball dresses into bags to keep them from the soot; what matter that the beauties of Des Moines have twisted their pretty chins awry in attempts to blow cinders off from their pretty foreheads; what matter that you cough like the people of Butte in your vain effort to catch a breath of something better than bitumen? "No smoke-consumers?" I gasped. "Sir," said the Iowans, "every citizen is a smoke-consumer."

CLEVELAND WANTS CHEAPER GAS.

The City of Cleveland, O., is endeavoring to make a new contract with the gas companies that now light the streets and, at the same time, obtain a reduction in the price. It asks for 75-cent gas, five cents lower per 1,000 feet than at present, a continuance of the payment of 6½ per cent. of the gross receipts of the company into the city treasury and the care of the gas lamps by the company. The reduction in the price of gas will be a big saving to the city and will mean thousands upon thousands of dollars to consumers during the course of the contract.

Under the present arrangement the city pays 80 cents per 1,000 for street lighting and in addition is required to light and turn off the gas and keep the lamps in condition. This costs the city between \$16,000 and \$18,000 per year. Under the proposed arrangement the gas companies will do this at the rate of 75 cents per 1,000 feet of gas used.

The contracts with the gas companies do not expire until two years hence, and one of the propositions in the new arrangement is to have the contract go into effect at once. The contract will run for ten years.

IOWA WOMEN CANNOT VOTE.

The constitutionality of woman suffrage has suffered a reverse in Iowa by a decision handed down by Judge Frank W. Elchelberger in an injunction case recently brought by citizens of Ottumwa, Ia., against the City Council and city officers of that city. Some time ago Andrew Carnegie offered the city \$50,000 for a public library, with the provision that the city guarantee \$5,000 annually for its support. According to the statute women were permitted to vote on the proposition to accept or reject the offer. By the women's vote it carried. Opponents of the measure began injunction proceedings, and Judge Elchelberger announced his decision, as above stated, on the grounds that the constitution does not recognize as voters any except male adult citizens.

Plan for Renaming Streets.

The citizens of Springfield, O., for some time past, have been considering plans for renaming the streets, and have finally concluded to recommend the following:

All thoroughfares running north and south are to be called avenues and those running east and west are to be called streets.

This refers to those thoroughfares which are of about uniform length. The short intermediate streets are to be called "Place," as Fisher Place.

Main street and Fountain avenue are to remain unchanged and Lagonda avenue and Clifton street will be Lagonda and Clifton Boulevards.

The avenues east of Fountain avenue will be named by number, as First avenue, Second avenue, etc., while those west will be called by given names of people in alphabetical order, as Adam avenue, Bertha avenue, Cora avenue, etc. Those south of Main street will be called alphabetically as A street, B street, etc., while those north of Main street will be called by names of trees, as Ash street, Beech street, Cedar street, etc.

"Places" will be called by the same name as the following street. For illustration, should there be a short street opened up between Beech and Cedar streets it would be named Cedar Place. All the streets, avenues and places on a line will be called by the same name.

Chicago's Anti-Noise Ordinance.

The Aldermen of Chicago have been laboring, during the greater part of the heated term, with the anti-noise ordinance. It provides that any one violating any of its provisions shall be fined from \$2 to \$100. Although adopted by the Council, the Mayor refused to sign it. The provisions of the ordinance are as follows:

No person shall make any needless noise of any kind in such a manner as to disturb the public comfort or quiet anywhere within the limits of the city of Chicago.

No person shall make any noise of any kind for the purpose of advertising goods, wares, or merchandise, or attracting or inviting the patronage of any person to any business whatsoever before the hour of 8 a. m. on the first day of the week, called Sunday, anywhere within the limits of the city of Chicago.

No person shall make any noise through or by any musical instrument or other device for producing sound before the hour of 7 a. m. and after the hour of 9 p. m. of any day, upon any sidewalk, street, alley, or public place within the limits of the city of Chicago.

No person shall drive, run, propel, or draw any wagon, truck, cart, carriage, automobile, or vehicle of any kind unless the hubs of its wheels revolve as noiselessly as is practicable.

No person shall own or keep any horse, cow, fowl, or other animal, which by making noise, shall disturb the public comfort or quiet anywhere within the city limits.

No person shall load or unload coal before the hour of 7 a. m. and after the hour of 9 p. m. in any residence district within the city limits.

Every person, firm, or corporation owning, operating, or controlling any surface or elevated street railway within the city limits shall at all times keep the road-bed, track, rails, and rolling stock in such condition that the operation of the cars shall be as noiseless as is practicable.

Electricity in British Cities.

(Special Report to "City Government.")

A few of the main thoroughfares of London will soon be electrically lighted, some poles having recently been put into position. Piccadilly had a few as long ago as the fall of 1896, and no doubt the success of that experiment is regarded as warranting extension on careful lines.

Birmingham is still a gas-lighted city, and there seems to be no street electric lighting movement, though on January 1 last the corporation took under its municipal wing the small electric lighting company. New mains are now being put in, and the question of electric street lighting must come up within a year or two, as must also the question of cost to consumers. Cork is one of the smallest towns with electric service and gets its electricity as cheaply as any city. The charge in Cork is 9 cents per unit for the electricity used in the first two hours every day and 2 cents during the succeeding hours. For motor purposes, the charge is 8 cents the first two hours and 2 cents thereafter. In Birmingham, there is a uniform rate of 14 cents per unit to the general run of consumers—that is, to the great number using 100 or less units per month. For any quantity in excess of 100 units, 9 cents is the charge. There is also a special provision of 8 cents per unit up to 100 units per month for electrical energy used for motors or all-day loads, and any quantity in excess of 100 units is 4 cents. A unit means here the burning of seventeen ordinary incandescent lights one hour.

The gas department of the city of Birmingham also favors large consumers, and the result is a large use of gas engines in factories. The prices of gas per thousand cubic feet per quarter in one building are:

Under 25,000	\$0.61
25,000 to 50,00057
50,000 to 250,00053
250,000 and upwards49

Havana's New Charter.

The city of Havana's new charter is now in operation. Time, alone, will demonstrate its worth. The powers of the recently elected officials are thereby greatly increased. The city will have control of all matters within its boundaries, particularly the establishment and regulation of the city administration, the adoption of measures relating to the use, arrangement and ornamentation of public ways, the comfort and health of the inhabitants, the promotion of their material and moral interests and the security of their persons and property.

The charter gives the new officials authority as to the closing, opening, alignment, widening, grading and cleaning of streets, squares, parks and every class of public ways, their use by persons, animals, vehicles, etc., their occupation by pillars, rails, pipes and other objects, and their paving, lighting and sewerage. It also gives them charge of the supply and distribution of water to park ways, streets, bathing establishments, laundries, fountains and troughs, and of the markets, slaughter houses, institutions of instruction and charity, prisons and the local reformatory.

The officials are also given supervision of the sanitary and hygienic service and amusements and public meetings, the use of and the maintenance of good order upon public ways. This covers such matters as the display of advertisements, the exhibition of flags on the streets, hawking noises, the discharge of fire-

arms and fireworks within the city boundary, vagrancy, the suppression of vice and immorality, the regulation of rates for vehicles, the regulation of gas, water and electricity, telephonic and telegraph connections, the fire department, watchmen, private police and the imposition of fines for the breaking of ordinances are also matters with which they are empowered to deal, but it is provided that the officials shall impose no fines in excess of \$50.

The municipal administration shall include the use, care and preservation of lands, goods, and rights which are appurtenant to the city and the establishments dependent thereon, and the administration, distribution, collection and expenditure of and accounting for all income and taxes necessary to carry on the municipal functions. The officials shall have power to grant franchises and concessions. In such matters as are not within their functions, the City Council and Mayor must, within the limits of their power, assist the central government.

Neither the central nor the provincial government shall have power to intervene in the matters placed under the control of the city officials. This gives more complete power than was ever before given to a municipality in the island. Charters will be granted to other cities as soon as the documents can be prepared.

Municipal Progress in Portland.

The voters of Portland, Oregon, have demonstrated their ability to divorce municipal affairs from state and national issues. A prominent municipal reformer of that city writes as follows concerning the recent election in that city, and states:

"We have just finished in this city the most interesting election that we have had for years. The State is very strongly Republican, and Multnomah County alone casts at least 5,000 majority for the ordinary Republican ticket. Party sentiment, due to national issues, as expansion, etc., in which this coast is deeply interested, is higher than it has ever been, and yet in the face of this our Citizens' ticket in this county has elected its entire legislative ticket, or very nearly so. It has certainly elected four Senators and at least ten out of twelve Representatives. This astonishing victory has come about from an impromptu combination of Democrats, disaffected Republicans and Municipal Reformers, the slogan of the last named party being "Hands off in city affairs." The Republican organization has for years managed affairs here with an eye single to making the city of Portland a political fortress not only in behalf of the Republican party, but of their own particular faction in the Republican party as well, and this effort of theirs has now been crushed at the polls.

"The entire city this morning has the air of a place just relieved from a long siege. So vigorously has the sentiment grown that county and city affairs are matters of business and not of politics, and should be free from perpetual legislative tinkering that our local politicians of both parties will hereafter recognize it and be inclined to give their allegiance to it rather than take the consequences of a conflict with it. The significance of the action of the voters is plain from the fact that candidates at large who were in no ways interested in our local affairs received the ordinary tremendous Republican majority, while politicians

whom the people knew were interested adversely to them, or who had voted for political control of the city departments, were soundly beaten."

Toledo's Gas Question Settled.

The trustees of Toledo's (O.) natural gas plant have finally succeeded in getting rid of the property, after a long and expensive contest. Mayor Jones put up a brave fight to protect the city's interests, but he finally had to yield to greater force. While the present agreement is not what he would choose, yet it is the best which can be secured under the circumstances, and better than the proposition which the Mayor succeeded in knocking out. The following are the essential points in the contract made with Kerlin Brothers:

Article 1. The company agrees to permit the city to continue using gas from its said lines and wells, or such portion of them as is necessary to supply the consumers, until such time as it furnishes the city with a supply of gas from some other source equal in quantity to that now furnished in the city of Toledo from the wells and through the lines owned by the company. Provided, however, that the city is to defray all expenses incident to operating the lines and wells of the company until such time as gas is furnished to the city from other sources.

Article 2. The company hereby agrees to begin work at once on the construction of a line leading to a gas field in Ottawa county, Ohio, and connect said line to the gas plant of the city at the east corporation limits of the said city; said line to be in operation by the first day of August, 1900. When said connection is made all gas will then be supplied to the city from the wells of the company in Ottawa county, or other sources. And when said connection is made, or gas is supplied from other sources, then in either event any or all rights the city may have under Article 1, hereof, shall at once cease and determine. The company defraying all expenses incident to the construction of said line and the operation of same to said city line, but not to include any of the expenses incurred in the maintenance and operation of the plant, or lines owned by the city, lying within the city limits of the city of Toledo.

Article 3. The company agrees to proceed with all reasonable dispatch and drill such number of wells in said gas field as in its opinion conditions warrant, with a view of supplying the city with a good and sufficient supply of gas for domestic purposes, only.

Article 4. The company is to continue supplying natural gas to the city for a period of three years from July 1st, 1900; but if the company cannot secure or maintain from said natural gas field or any other source to which it may connect its lines, a supply of natural gas sufficient to supply the demands made upon it by the city, the city shall, nevertheless, have no redress for damages against the company on account of the company failing to supply such demand, nor on account of breakage of lines; and it is further agreed that should the supply of natural gas owned by the company fail or diminish to such an amount that it is not warranted in maintaining its line and wells used for the purpose of supplying the city, in that event the right is hereby reserved to the company to discontinue furnishing natural gas under this contract, provided, however, the company shall not discontinue furnishing such natural gas as it may be able, to

the city until it constructs and puts in operation a manufacturing fuel and illuminating gas plant, hereinafter provided for.

From and after August first, 1900, the consideration to be paid by the city to the company shall be at the rate of twenty cents per M., cu. ft., meter measurement; but from the quantity of gas furnished the city from month to month there shall be deducted the amount of gas sold to manufactories by the company, and settlements made accordingly. The company is to allow the city a credit of ten per cent. on its gross receipts derived from sales of gas to manufactories as consideration for the use of its lines for the purpose named.

Article 10. Whenever the company fails to supply natural gas in quantities sufficient to supply the demands of the city, it shall then proceed to construct a manufacturing fuel gas plant, of sufficient capacity to meet the demands of the consumers and patrons of the city, and from time to time increase the generating capacity of said plant at the demand and conditions may warrant. The gas manufactured from said plant shall be a commercially fixed gas, equal to 500 heat units per cubic foot; and shall be supplied to the city from a holder or holders, to be constructed and owned by the company.

Such plant to be erected within the city limits of Toledo, and at a point not more than two thousand feet from the main of the present gas plant.

Article 11. The price to be paid for said manufactured gas, meter measurement (meter or meters to be located near the outlet of holder) shall be as follows:

For all gas supplied not exceeding a monthly average of one-half million cubic feet per day, twenty-six cents per M., cubic feet.

For all gas supplied not exceeding a monthly average of one million cubic feet per day, and over one-half million, twenty-four cents per M., cubic feet.

For all gas supplied not exceeding a monthly average of one and one-half million cubic feet per day, and over one million, twenty-two cents per M., cubic feet.

For all gas supplied not exceeding a monthly average of two million cubic feet per day, and over one and one-half million, twenty cents per M., cubic feet.

For all gas supplied, not exceeding a monthly average of two and one-half million cubic feet per day and over two million, eighteen cents per M., cubic feet.

For all gas supplied over a monthly average of two and one-half million cubic feet per day, sixteen cents per M., cubic feet.

Rewards for Street Railway Employees.

The street railway company of Spokane, Wash., has been operating since May 1, a novel plan for securing effective service from its employees. It is explained in the following notice, issued to the men:

"On the first pay day of January, 1901, the premiums, under the following plan, will be paid to motormen and conductors for the period from May 1st, 1900, to and including December 31st, 1900. The following is the plan.

"An account of the hours worked by each motorman and conductor will be kept monthly by the Superintendent. A premium of one-half cent per hour, over and above the regular pay of his grade, will be allowed each motorman and conductor for freedom from accidents and obedience to the company's rules. An account will also be kept of all accidents

and infractions of rules, and fines will be imposed by the Superintendent, against the premiums hereinbefore mentioned for such accidents and infractions of rules. At the end of the year, such premiums as carmen have earned, less such fines as have been imposed, as before mentioned, will be paid in cash to the carmen earning such premiums.

"In addition to this, all fines that have been imposed during the period, will be distributed among those receiving premiums, pro rata, in the proportion that the premiums earned bear to the total amount of fines.

"It should be distinctly understood, among the carmen, that the fines imposed do not return to the company's treasury, but are distributed among the premium earners, pro rata to the amount of premiums. The fines mentioned herein are not taxed against the regular pay of the grade, but against the premiums of one-half cent per hour.

"Any man discharged or leaving the company's employ, will lose all interest in the premiums and all pro rata interest in the fines, and the amount thus released will be added to the amount to be distributed among the men.

"The following examples will tend to explain the practical working of the plan:

"Supposing that during the year, a total of 250,000 hours are worked by carmen, then a sum equal to one-half cent per hour or \$1,250 would be set aside and become divisible among the carmen. Supposing that, in the same period, a man worked 3,500 hours and had no accidents and broken no rules, he would then have a premium of \$17.50 due him, in addition to his proportion of the fines that had been imposed during the same period. Assuming that the total fines, for the same period, amounted to \$250, then his premium would be increased in the proportion that \$250 (total fines) bears to \$1,000 (unfined premiums) or one-quarter; therefore, his total premium and share of fines would be \$17.50 plus \$4.37 or \$21.87.

"Supposing that, during the year, a man had been fined \$10., his premium then, proceeding as above, would be \$17.50 minus \$10 or \$7.50, and his share in the fines would be one-quarter of \$7.50 or \$1.89, making a total of \$9.37.

"The foregoing plan than is the result of much consideration, it being the desire of the company to so arrange that each carman may have an opportunity to earn a premium above his regular pay, for especially meritorious services.

"During the present year, the plan will, necessarily be more or less of an experiment and will be subject to such changes after January 1st, 1901, as the experience of 1900 may suggest."

The Pros and Cons of Public Ownership.

Discussion Solicited.

Senator Kernan on Municipal Ownership.

Senator John D. Kernan, of Utica, N. Y., in a recent public utterance, put the question of municipal ownership in a nutshell, when he said:

"I doubt not that in time modern city charters will require the people of cities to govern themselves in all local matters. Under such charters street franchises, for example, will never be granted except by popular vote, and the people will have the right to buy and own all quasi public works occupying their streets,

such as water, gas, electric light, and street railways. It is difficult to understand how it is businesslike for the people to give away these franchises for nothing, to permit them to be capitalized at millions and then to be taxed in fares to pay interest upon the gift.

"In the great future the growth of commerce and the prosperity of your city are wrapped up in the cause of good government, which can only result where citizens are earnest and patriotic in their conduct as electors and officials."

Some Experiences with Municipal Plants.

Prof. G. D. Shepardson, in a paper on municipal ownership, read at the recent convention of the Northwestern Electrical Association, recited some instances illustrating the incompetent management of some municipal plants. The state of the records kept in some of them is, he said, almost incredible. In several towns there is no complete record of the service connections to the water works and electric plants. In one place, a new superintendent found it necessary to shut off the water to enforce the payment of back water rents. There was no plan of the water mains or services. He, therefore, was compelled to open the streets and search for the cut-offs, for which purpose the services of a chain gang from the county jail was secured. In another town, when the collector was getting a promise of payment from a merchant, he was requested to bring the bill for the meter in the barn at the same time. The collector held his own council, and discovered a meter with a number of lights, for which no record could be found. In that town, the only account books found were an electric light book with monthly columns for accounts of customers, and an individual account book for water consumers, there being no record of purchases, repairs or any other expenses. In another place by a careful canvass of the town and an examination of the lines, water and lights were added to the record of about \$900 income per year, and no one knew how long they had been getting free service. In another place, where the rates are low and the water power leaks badly, so that it is necessary to spend several thousand dollars at once, the superintendent is confident that the plant is clearing about \$800 net profits per month. In another town "there are no records and no system of accounts."

Closely allied to poor systems of book-keeping is the incompetency of the city clerk or collector who has charge of records and collections. They do not understand the business, and naturally do not make it pay. In one instance the collector knew practically nothing of the station working, was ignorant of the station output, amount of coal used for electric part of plant, etc. Owing to inefficient and incompetent officers, all sorts of prices were charged for supplies and work furnished the city. For example, a plumber was paid \$2.20 for a common valve costing 90 cents, and other items in proportion. In another place, the innocent recorder was beguiled into paying a higher price for a new lot of incandescent lamps, "because they had more watts than the kind formerly used."

The committees of the town councils are often green hands and of little value in administering municipal plants. In one place a former collector had been found short in his accounts, and a committee was appointed to check his work. After two days upon his books, they made a report on the shortage, which

was made good, and the bondsmen were immediately discharged. Soon after, when the water rents came due, a number of people were found to have his receipts for dues which had not been credited on the books, but the man's bondsmen had been released, and the town had a considerable sum to charge to profit and loss. A committee went over a lot of old accounts, and found that their predecessors had approved reports in which there were serious defects, but lest they should seem to reflect on the abilities of their friends, the superintendent was instructed to call it square, and open a fresh account with each person whose accounts were found faulty in former reports.

A case recently occurred in a neighboring State, showing how short sighted some councils are in regard to franchises. A company applied for a franchise to furnish light and power from a water power not far away, intending to spend about \$30,000 in the plant. After dallying along for some time, the franchise was granted by the council, but vetoed by the Mayor, who wanted a municipal plant. Although the town was already within \$8,000 of its bond limit, it voted bonds in that amount to build a plant, hoping in some providential way it could put in a plant. In one town where a committee of the council was supposed to keep track of the matters, a superintendent managed to do away with over a thousand lamp renewals in a single year, of which there is no account. Over \$300 worth of fixtures sold without record were traced.

The superintendents of municipal plants are often incompetent. The superintendent of one plant where they still use 50 volt transformers, heard of the saving in using large transformers, so he bought one and tried to supply 50 lamps one block distant by a No. 6 wire (assuming one ampere per lamp and 400 feet to the block would give a drop on the line of about 22 volts). The superintendent was sure that No. 6 was large enough, for the insurance rules said it would carry it all right. The trouble was, therefore, in the transformer, and he compelled the agent to trade it for three small ones. The large one "did not regulate" as well as the small ones, and he is sure that the modern idea of large transformers with secondary networks is a mistake and a failure, for he tried it.

In another town of about 4,000 inhabitants, a technically trained superintendent is saving about \$6,000 annually above the records of his predecessors. In a smaller town, a similar man is saving between two and three thousand dollars annually to the town on account of more skillful management. He increased the revenue by \$100 in a single month by using better transformers and lamps, although the station output was 10 per cent. less. The station output was materially lessened by inspection of the circuits and tying up the lines where they had fallen upon the cross arms. Incandescent lamps on flat rates taking 58 to 70 watts, were replaced by 53 watt lamps with marked economy. In another station the superintendent confided to an agent that he was bothered about learning the frequency of his alternator. The agent said it was too complicated a matter for him to figure offhand, but he would calculate it when he returned to his office. The agent found that the practice of his own company in similar cases was to use 125 cycles, and he reported that the superintendent had such frequency. As a matter of fact, it was 140, and the speed was marked on the machine. In one town the chief reason why one Alderman voted in favor of one sys-

tem against a lower bid was that his preference was the machine with "kilowatts," while the cheaper machine was a "multipolar" machine, and he preferred kilowatts to multipolars.

In the laudable endeavor to secure economy, the Mayor and council frequently lose at the bung while saving at the spigot. This occurs both in the first purchase of the plant and in its later operation. After one town had voted to put in a lighting plant, the Mayor took a trip to learn what he could. After consulting with several agents and getting propositions from them, he called upon an engineer, who was given to understand his services would be required. After spending some hours pumping him, the Mayor left and went home, where he concluded that he was enough of an engineer himself to lay out the plant. So he bought some machines, hired a wireman, and the plant was put in. At another place, a resident bought some second-hand machinery, and after putting it in operation, sold it to the town for what it would cost when new. In a few weeks they had to spend about a hundred dollars for repairing the armature, and then had to buy a new machine.

At another place they decided to secure a cheap engineer to design their plant. He specified a 20 horse power gasoline engine to operate a 600-light dynamo, and, in addition, to drive the pumping machinery for the water works. The council made a contract for the gasoline engine as specified, including a proviso that if a steam plant were substituted the gas engine contractor was to receive a commission of 15 per cent. of the cost of the steam plant. It is reported that this was actually done and paid. Two of the larger towns of the State were contemplating municipal ownership, and each secured the services of an inexperienced young man to prepare plans and specifications for the plant—in one case, because he was a friend or relative of one of the committee; in the other case, probably because he was cheap. The country is full of half-baked electricians who pose as engineers and as advisers to investors.

There is frequently an attempt to reduce operating expenses too far. At one place the council discharged a good engineer and hired another because he was cheap. Within three days he got his cylinder full of water and broke the girder of the Corliss engine. It is common even with a privately owned station to attempt economy by hiring cheap firemen, since anyone can shovel coal or throw wood. But owners fail to recognize that by paying ten to twenty dollars more for securing a capable fireman they are apt to save his extra wages several times over in reduced fuel bills.

In some cases there are great losses on account of downright dishonesty of the superintendent or the council committee. A city employing an honest superintendent with liberal pay and some backing in the council will often prevent small and also large steals which are almost invariably found in municipal departments, such as lamp renewals (on which it is difficult to keep accurate account or check), "rake offs" on purchases for the plant, for which in the end the city pays. One supply company offered a new superintendent as high as 20 per cent. on all purchases the year round, as they had always done so. This is substantiated by old bills. Lamps are checked up once a month while burning, and one is often asked to go easy in counting, being offered all sorts of bribes, from cigars or drinks to considerable sums in cash. Certain officials are known to

have received special concessions in this way amounting to several hundred dollars per year. All this could have been prevented by a proper system of checking, but at best comes down to one man being honest. Carloads of wood have been sold "by the car" by former superintendents. An investigation by an alderman indicated that a loss of over \$1,000 per year had been received from that source alone. In another place the city recorder is said to collect the accounts, and sometimes sublets the job to his friends, who knock down about half and turn the balance over to the recorder, who in turn transmits to the treasurer so much of it as suits his convenience, there being no records and no other system.

The political conditions prevent best results in many plants. Where the employees are appointed by aldermanic influence, it is not uncommon for an underling to retort to his superior officer when corrected for some shortcoming. "Oh, well, I have more pull than you have, and what are you going to do about it?" In one town, until recently, the plant was operated by two parties, an engineer, who took care of the station, and a lineman, in charge of outside work. These parties were not on speaking terms, and, of course, each attributed all trouble with the lights to the other man's part of the plant. This state of affairs continued for several years, during which time the arc system was in bad condition, the lineman attributing it to the dynamo, and the engineer laying it to the lamps. When a change was made, there were two applicants for lineman; one a good man who would have attended to business, the other was a young son of one of the aldermen, and with little experience or ability. There were also two applicants for fireman; one a good man, and the other a lazy, good-for-nothing fellow, who claimed to have considerable influence in the country, so that he could turn considerable trade to some of the stores in which the aldermen were interested. By combining forces, the poorer man was appointed in each case.

There is a continual struggle between the temperance and the saloon element in most of the towns, and when a new election puts the opposition into power the superintendent is almost sure to lose his place in favor of some friend of the new management. In one town the superintendent had found the station and accounts in very bad shape, and was getting them into fair condition, when the election went "wet." The next day the new Mayor informed the superintendent that he would give him any kind of a recommendation that he might ask for.

Public Ownership for Charleston.

The city council of Charleston (S. C.) has authorized a committee to make contracts for a water supply for Charleston which will cost \$1,600,000. A lighting plant will be instituted in this move in the direction of municipal ownership. The scheme is to have the plant constructed by a private corporation, the city to have the privilege of buying it at a future day. Special legislation will have to be secured before the plans can be put into effect. Water will be brought here from the Edisto river, 30 miles distant. Strong efforts are being made to provide the water system at the earliest practicable time in view of the fact that the United States government is about to move the naval station to Charleston from Port Royal and by reason of the exposition which will be held here next year.

THE CLEANING OF A GREAT CITY.

GLASGOW'S ECONOMICAL MUNICIPAL HOUSEKEEPING—DUST CREMATOR AND DUST UTILIZER—PROFITABLE MUNICIPAL FARMS.

By Donald McColl, Superintendent.

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The problem of municipal housekeeping is one which requires much attention of civic authorities in these days of rapidly changing conditions. No branch of the service presents more varied and changing obstacles than the cleansing of the streets and the disposal of the refuse, dust and garbage which every large community accumulates. In order to be healthy a city must be clean, and how to cleanse economically is a question which requires many resources; methods have to change to keep pace with sanitary progress, and, in many cases, systems in use involve waste and create nuisances.

Glasgow has a population of 750,000; an area of 20 square miles, and a total mileage of streets, including macadamized roads, of 315 miles—the streets averaging 60 feet in width—all of which must be kept clean and in a sanitary condition. It is nearly thirty years since Glasgow abolished the contractor in its cleaning department. The whole work is directly managed by the municipality, and presents a variety of economical methods in the disposal of all kinds of refuse. The department has dust destructors and dust utilizers—machines which burn and machines which sift the vast mass of ashes, dust, garbage, refuse, and street sweepings collected every day. Glasgow, with its busy streets, its great industrial establishments, its heavy rains, is not an easy city to cleanse, but we collect systematically and often. We make a vigorous use of the broom, and believe in the sweetening and purifying influences of water, a constant supply of which is always on tap.

The Cleansing Department owns 900 railway wagons, and sells its useful products to farmers in half the counties in Scotland. It has several farms with a total area of 800 acres; it has transformed useless bogland into an agricultural paradise; it has its own railways on its estates; it owns quarries and workshops. And 1,250 men are employed in connection with the cleaning operations and subsidiary industries.

The collection of city refuse and the cleansing of the city was taken into the hands of the municipal authority in 1868, when the contract system ceased. At that time the Town Council, acting as the Police Commissioners, were the responsible authority. The department then formed has increased with the growth of the city, and the staff has nearly doubled, the average number of men during the year being 1,140. For cleansing purposes the city is distributed into 13 districts, and the staff is almost equally divided into day and night sections. Before dealing with the methods for disposing of the refuse, I will describe briefly the process adopted for cleansing and collection.

The paved streets of the city are swept during the night chiefly by rotary horse brushes, of which there are 33 in use. The work begins at 10 p. m. and finishes at 9.30 a. m. Sweepers follow the machines and gather the sweepings into heaps, who in turn are followed by carts beginning their operations at 11 p. m. The principal streets are swept nightly, second-rate streets every alternate night, and others of less importance as required. I am decidedly in favor of sweeping well paved streets with the rotary horse-

brushes. Cross-sweeping the granite paved streets by hand brushes was in existence at one time, but this practice was discontinued many years ago. During the day the principal streets are "picked," and the "pickings" deposited in bins sunk into the pavements. There are 1,380 of these bins, and they are emptied at night by the collecting carts. In addition to this we have a system of collecting waste paper in bags. The bags are worked upon the exchange system, and, apart from the sum received for the paper, a considerable improvement has been effected in the condition of the streets, and also in the reduction of material sent to the destructor works for cremation. The sweepings from the macadamized roads being valueless, are deposited in "tips," or trucked into the country for filling up hollow ground.

The resources of the department are never seriously taxed by snowfalls. Some winters we have practically no snow. During the past winter, however, we had three heavy falls, the extra cost for removing same being a trifle over \$7,000. This does not include the ordinary time worked by the staff of the department, but is entirely for the hire of additional horses and men, and overtime to the regular staff.

The greater part of residential Glasgow consists of flats, with courts or entries. The cleansing of these courts is carried on by 250 men under 17 overseers. Every court, except those under private control, is visited and swept once, and in many cases twice and three times daily. With very few exceptions, all the backyards in the city which are common to more than one occupier are thus cleansed. The dirtier courts in the poorer parts of the city are regularly hose-washed, for which purpose the department has fitted water mains with 1,472 taps. During the summer and autumn the courts are hose-washed daily. There is a good deal of street-watering done, in connection with which 48 water-barrels, six iron tanks, and nine patent revolving disc watering machines are employed. The machine covers a road 40 feet wide, but cannot be used in the most crowded and busiest thoroughfares, as it would seriously disorganize the traffic. Watering is always carried on during the night to allay the dust which would be raised by the operations of the sweeping machine. There is, of course, no lack of water, as a plentiful supply is always at hand. So much for the daily routine of the cleansing arrangements in the city.

There are four kinds of city refuse—(1) domestic or household refuse; (2) refuse from business premises, such as shops, warehouses, and offices; (3) excremental matter from public works and dwelling-houses; and (4) stable manure and refuse from abattoirs. In Glasgow domestic refuse is collected in ashpits situated in the rear of tenement dwellings, and these are emptied weekly all over the city, with the exception of the central district, where the pits are attended to twice weekly. To facilitate and insure systematic emptying, each district is subdivided into six divisions, one of which is overtaken each night. The men, called "wheelers," who empty the ashpits, start work at 10 p. m., and are followed an hour later by the carts. They work, as a rule, in sets of two or three, each set being furnished with a carrying creel and a barrow (fitted with india rubber tires). The barrow is of course used for level places, and the creel where the refuse has to be carried up or down stairs. These men are paid by the ton, at rates

varying from 16 to 21 cents. While the ashpit system obtains generally, a daily morning dust-cart service is in operation in a portion of the west end of the city, where the houses are of the better class and chiefly self-contained.

Refuse from offices, shops, warehouses, and other business premises in the central or business portion of the city is removed daily by the morning dust-cart service. In connection with this service, and for the convenience of occupiers of such premises, the department supplies covered galvanized buckets of regulation pattern at cost price. These buckets not only prevent the light material from being blown about, but are more easily emptied, and look better than some of the nondescript receptacles occasionally used. The superintendent of cleansing can insist on suitable buckets being used. The refuse collected by this service is removed in carts with crank axles, so as to facilitate the emptying of the buckets into them. They are larger than the ordinary cart, the material being comparatively light. This portion of the city refuse is, as a rule, cremated, nothing of manurial value being in it. Recently a system of removal of fish refuse in pails with airtight covers, such as are used for excrementitious matter, was introduced. This valuable material is thus removed without nuisance, and instead of being burned, is mixed and sold with the city manure. The excrementitious matter which does not find its way into the sewers is collected in galvanized pails of regulation pattern, these being removed and replaced by clean ones as often as necessary. Owing to the extension of the water-closet system at the instance of the Sanitary Department, the pails are being gradually abolished. The vehicles used for the removal of the pails are four-wheeled vans, covered by a spring cover fitted with a lining of indiarubber tubing. On reaching the despatch station the pails are emptied into a specially constructed tank, and after being washed in hot water and disinfected are replaced in the van, which also undergoes the same process of treatment.

The removal and disposal of the stable manure, and the refuse from the abattoirs of the city, form no little item in the work of the department. In addition to the manure produced at the stables of the department, all the manure from the Corporation Tramways Department, as well as that from sundry other stables, is dealt with. The refuse from the abattoirs is also mixed with the stable manure, and goes to improve its quality. For this material, which amounts to about 51,000 tons per annum, a ready sale is found, which brings the department a considerable income.

In addition to what may be termed the ordinary refuse, the department undertakes the disposal of the sludge resulting from the operations of the Sewage Purification Department, the annual output of which runs to about 6,300 tons. The whole was sent direct to tips.

The refuse of the adjoining burghs of Partick and Kinningpark is also, by arrangement, sent to the Kelvinhaugh and Crawford-street despatch works respectively for treatment and disposal. The quantity from these sources in 12 months amounted to 17,614 tons.

For many years after the collection and removal of the city manure was taken over by the authorities, places of deposit for the material were owned or rented at various points around the city. In these depots there were stored at times many thousands of tons of refuse,

and as some of them were not far distant from dwellings, no small nuisance resulted, and complaints were loud and numerous. That primitive system, which would not now be tolerated, cannot bear comparison with the more scientific methods now in operation.

With the advance of sanitary science more frequent and systematic removal of house refuse became necessary, consequently the refuse became lighter and more difficult to turn into a marketable commodity, and it was to meet this difficulty that mechanical means had to be adopted. The refuse despatch works at which the waste material of the city is now dealt with are situated all round the city. The dispatch works were designed with the view of separating the inferior material from that of manurial value, reducing the bulk by the cremation of the former and the mixing of the latter so as to form a good fertilizer. Although the internal arrangement of the works is different on account of the nature and dimensions of the ground upon which they stand, still the same method is adopted at each.

Carts with refuse from ash-pits and bins on arriving at the works pass over a weighing machine, the weight and time of arrival being noted by the weigher. They then pass on to the tipping floor, which is of iron and supported by iron girders and causewayed. In this floor are various shoots to the flat beneath for the different classes of material. The ash-pit refuse finds its way through these into revolving screens, which work in a horizontal position. The finer portions of the refuse pass through the screen into a mixing machine, which also receives a regulated quantity of excrementitious matter from a tank conveniently situated, and also a proportion of sweepings from paved streets. The whole is thoroughly mixed by means of revolving blades, and falls into railway wagons on the siding underneath. The product, which forms a manure free of all objectionable rubbish, finds a ready sale among agriculturists. The rougher portions of the material which cannot pass through the meshes are forced by the revolving process out of the bell-shaped mouth of the screen on to an endless carrier. When passing along this carrier any articles of value, such as iron, meat tins, etc., are picked off and thrown aside, soder being extracted from the latter by means of specially adapted furnaces. The remainder, chiefly light, useless material, falls from the carrier on to a range of furnaces on a lower level, where men are stationed for the purpose of feeding the furnaces. In this manner all the useless refuse, which formerly rendered the city manure next to unsaleable, is reduced to clinker, which is broken on the premises and sold at a fair price for concreting purposes.

During wet weather there is naturally an immense quantity of slushy sweepings collected from the paved streets. In order to utilize this material large tanks are provided. These have sloping bottoms, and are provided with means for draining off the water. Into these tanks cart-loads of slops are thrown, and when full the tanks are allowed to stand for a day or two. The contents are then mixed with the prepared manure. Stable manure is dropped from the tipping floor direct into the wagons below, as is also mud from the macadamized roads, and useless rubbish collected from the quays and wharves. The stable manure is of course sold, but the rubbish and mud is trucked to tips on the farms of the de-

partment at Fulwood Moss and Maryburgh, on the Caledonian, and Ryding on the North British railways.

The works are started on the arrival of the first cart of refuse, and continue in operation until the last arrives, not later than 10 a. m., by which hour the whole night collection has been satisfactorily dealt with and despatched to the country.

The ventilation of the works is effected by means of powerful fans, the largest of which passes 40,000 cubic feet of air per minute. The fan exhausts from the mixing chamber and forces the vitiated air into pipes which lead into chambers underneath the cremating furnaces, thus forming a blast and burning the bad air. The smoke, which is light in color, is carried off by means of chimneys from 250 to 300 feet in height.

Without these works, so admirably adapted for the treatment of all the various kinds of refuse, it would be impossible to conduct the cleansing operations with the degree of efficiency to which they have been brought.

The collection and treatment of the refuse of the city forms no light task, but the disposal of such a huge quantity of material as 1,370 tons per day (which was the average for 1898-99) is a question which taxes to the utmost the staff of the department.

No doubt the process of cremation reduces the quantity of domestic and shop refuse considerably, the proportion being something like 20 per cent. But there still falls to be disposed of by rail over 1,000 tons per working day. This total includes all the various classes of material dealt with. Of this quantity, in same year, about 52 per cent. was sold to farmers as manure, and the remaining 48 per cent. (being the unsaleable portion) was sent to tips on the farms of the department.

The sale of manure is conducted by salesmen, under the direct supervision of the head office, and by agents who dispose of what they can as occasion offers. The farmers who deal with the department for this fertilizing commodity number 1,634, and are scattered over 16 counties of Scotland—viz., Lanark, Renfrew, Dumbarton, Ayr, Linlithgow, Stirling, Perth, Forfar, Edinburgh, Fife, Haddington, Kincardine, Peebles, Argyll, Dumfries and Selkirk.

There is, as a rule, a firm demand for the prepared city manure, unless during seed and harvest time, when farmers are otherwise engaged. At these seasons the surplus manure is sent to the farms of the department.

For the transit of the city manure and refuse to the country, 890 railway wagons (the property of the Corporation) are employed. Special rates are fixed by Act of Parliament for the conveyance of the city manure. The department pays the carriage to the railway companies, and charges the customers a price delivered.

Although the price of the manure has been gradually diminishing for a number of years, a considerable revenue is still derived from this source.

Perhaps the most interesting branch of the Glasgow Cleansing Department is the municipal farms which it manages. The first venture in the way of acquiring land was made in 1879 by the leasing, on a 31 years' improvement lease, of 98 acres of bogland—viz., Fulwood Moss, near Houston, Caledonian Railway, 10 miles from the city. In 1889 other 25 acres of bogland adjoining were added, and this year an additional field of 19 acres has been arranged for, four acres of which are

already in the possession of the department, and the whole to come under lease, at the rent of \$10 per acre, on the expiration of the present tenant's "tack" in 1901.

The original portion is held at a nominal rent of 25 cents per acre per annum for 20 years and \$1.25 per acre thereafter. The second portion of 25 acres costs \$75 per annum. The object in view was to provide an outlet for surplus city refuse on the Caledonian Railway system. Fulwood Moss was originally a bog, and yielded no return whatever to the proprietor. The first step taken by the Commissioners was to have the land thoroughly drained. This was done in such a complete manner that in a short time the ground was fit to be cultivated. The draining cost \$16,115, and a railway which was run through the property cost an additional sum of \$6,575—in all, \$22,690. The total capital outlay is being cleared off in equal annual payments, so that it will be liquidated on the expiration of the lease. By means of the railway the refuse from the city is laid down at various points, ultimately to be conveyed over the fields. The railway siding on the farm is of immense advantage in loading the produce of the land direct from the fields, thus saving cartage to a loading point on the main line.

For some years potatoes were the principal crop, the varieties grown on the Moss finding a ready sale as seed. But of recent years the chief products have been hay and oats, all of which are used in the stables of the department in town.

The Moss is now a first-class agricultural land, the only regret being that it goes back to the proprietor on the expiration of the lease in 1910.

This farm has invariably shown a profit on the cropping account, the average for the last five years being \$382.16, while during the same period it provided annually an outlet for an average of 23,189 tons of refuse. The quantity received for the year ended May 31st, 1900 was 52,085 tons.

This estate, which is situated on the North Monkland branch of the North British Railway, about 11 miles from the city, is 565 acres in extent. This property, which comprises five farms, was purchased in 1891 for \$62,875. With the exception of one farm of 103 acres, the lease of which has several years to run, all the land is in possession of and farmed by the Corporation.

The soil is, as a rule, poor and clayey, and capable of much improvement. The undulating nature of the surface is such as to provide accommodations for all the surplus unsaleable refuse of the city, falling to be loaded on the North British line, for many years to come.

During the short period which has elapsed since the property was purchased, the ground has been thoroughly drained and suitable railway sidings formed. New buildings have been erected at Brackenhist (the central farm), consisting of manager's house, with committee room attached, two double cottages for ploughmen, and a range of buildings comprising a 10-stalled stable, loose boxes, cart sheds, granary, hay sheds, etc., while the buildings at the other farms have been repaired and renovated.

As at Fulwood Moss the chief crops grown here are hay and oats. The whole of the potato crop and a large proportion of the turnips were sold off, only a small quantity of the latter for use in the department stables being retained. All the other crops raised were used as provend-

er and bedding for the horses of the department. The cropping account of this estate for last year showed a profit of \$3,867.75; and during the year the quantity of refuse deposited amounted to \$6,142 tons. On the estate are two winstone quarries which, according to new leases entered into, will now yield about \$1,350 per annum in rent and royalty.

Maryburgh Farm is a small property of 31 acres or thereabouts, situated on the Caledonian railway between Glenboig and Cumbernauld. It was purchased in 1895 for \$5,000. The object of this purchase is to provide an outlet for surplus city refuse loaded on the Caledonian north line. The Hallbrae Farm, which extends to 45 acres, and adjoins Maryburgh, was leased in 1895 for 19 years. It was obtained chiefly to give more complete railway connection to Maryburgh, and to give siding accommodation for the delivery of city manure to the farmers in the neighborhood.

In 1878, on the acquisition of ground at St. Pollox for despatch works, the workshops of the department were transferred there from Parliamentary-road. The works are upon the Caledonian Railway system, but by arrangement with the other company wagons requiring repairs are run directly into the shops. The workshops are fitted with labor-saving machinery of the most improved description—viz., steam hammer, fans, circular and band saws, turning lathe, planing, mortising, boring, and screwing machines. These machines are driven by a small engine, which is supplied with steam from the boiler at the adjacent despatch works.

There are employed in the workshops eight cartwrights, nine wagon-builders, two joiners, nine blacksmiths, and three painters. All the operations carried on in the workshops are under the direction of a practical foreman. The only section of the work done by contract is the horse-shoeing. With the extension of the city stables had to be placed in the various districts, and it was found to be more economical to hire a jobbing horse-shoer in the vicinity than to send horses from all quarters of the city to a central shoeing forge.

As already stated, the crops grown upon the farms of the department go a long way in providing food and bedding for the stud. The hay crop is more than sufficient to meet all the requirements of the cleansing and several other of the Corporation departments, while the oat crop furnishes straw which very nearly suffices for the bedding. The hay and straw are baled at the farms and trucked by rail to the city. At the granary the hay is mechanically chopped and sifted, and the grain, which is purchased monthly, is bruised, mixed, and distributed in regulated quantities to the various stables. For the year 1898-9 the cost of feeding and litter was at the rate of \$2.36 per horse per week.

At each of the chief cleansing stations within the city suitable houses are provided for the principal foremen. At Kelvinhaugh, four tenements have been erected for the workers. These comprise six houses of one apartment at rents from \$32.50 to \$37.50; 20 of two apartments, valued at \$43.75 to \$48.75, and two houses for foremen, containing four apartments, at \$95.

The chief office of the department is in the City Chambers, and is connected by telephone with all the despatch stations, stable yards, and muster-halls by 14 private wires. The office staff of 18 is employed in dissecting, arranging, and

recording, under different headings, the work done each day. The foreman of the different districts and despatch works send in every morning the details of the work done during the previous night and day, and some idea of its extent and variety may be gained from the fact that a record of 24 hours' work covers 85 pages of foolscap.

The accounting and collecting and payment for sales of manure to farmers, and for other charges, numbering in all over 3,000 accounts; making up pay-bills for 1,250 men, and the direction of traffic of 890 railway wagons used in the conveyance of manure and rubbish, also form part of the work, while the correspondence involves the despatch of, on an average, 130 communications daily. Comparisons of revenue and expenditure are made up monthly, so that the progress of the finances in comparison with the estimate may be noted and checked. The total amount dealt with in 1898-9 was \$752,880.47.

It will thus be seen that the cleansing of a large city according to modern principles is a gigantic and difficult undertaking. In Glasgow it involves the employment of over 1,200 men and 275 horses, the regular cleansing of back courts and closes, the sweeping and watering of all the streets and roads, the systematic removal, treatment, and disposal of the heterogeneous mass of refuse collected (amounting to 1,370 tons per working day), the maintenance of 890 railway wagons and all other plant, and the control of five different farms extending in all to 680 acres. The cost of these operations during the year ended May 31st, 1899, was \$365,595.

While Glasgow makes the most of its refuse—only burning what is useless—it does not utilize the heat which this consumption produces. The fact has not escaped attention, and the possibilities of further economy by the utilization of the wasted heat have been considered by the Cleansing Committee.

The subject has been dealt with in several reports and considered by the Cleansing and Health Committee. Quite recently I submitted a report to the latter Committee containing suggestions as to the best way in which the waste heat might be utilized. In the existing three despatch works the boilers were placed apart from the furnaces, allowing the gases to escape into the chimney. At the new works now in course of construction arrangements have been made to place the boiler so that the steam can be generated in it from the waste gases from the destructor furnaces. These arrangements will not add much to the cost, while they will demonstrate the manner of supplying power from the cremating furnace for other purposes than are required at the works themselves. With regard to the other three stations, I think that they could be reconstructed so as to generate steam in the same way. I estimate that the average amount of refuse burned in these three stations amounts to 120 tons per day, and that the horse power generated is 8,960 per day, or 896 per hour. The estimated cost of altering the works is \$27,300. As regards the utilization of the power generated, I dismissed the suggestion that steam might be supplied, on the ground that power is generated during the night when it is not required, and that in any case the places in the vicinity of the works are not likely to require steam. There is greater hope in putting the heat to particular account in connection with the electric light. Sufficient power

would be available at the stations for lighting 598 street lamps of 2,000 candle-power each. Suitable electric lighting plant could be placed alongside the existing boilers in each of the works, and economy would undoubtedly result from this arrangement. There is another possible outlet for power in connection with electric tramways, but here again the chief difficulty is to be found in the fact that whilst the power is produced during the night it is required during the day.

Municipal Ownership in England.

During the past twenty years what is called in England municipal trading—that is, city ownership of gas, electric lighting, water works, tramways, etc.—has vastly increased. While some superficial critics have pointed to the fact that local indebtedness of municipalities has increased during the same period, that is due to the purchase of existing plants and also to the growth and development of the public school system, and it is not, therefore, to be taken as an indication that the municipalities have embarked on a career of extravagance and costly municipal expenditures.

Public Ownership for Chicago's Street Railways.

The Railway Commission of Chicago is endeavoring to find a solution of the city's intricate street railway problem. As a partial solution it recently declared itself in favor of a modified form of municipal ownership of street railway properties and in favor of a form of compulsory arbitration in labor disputes which would make street railway strikes impossible.

The Commission has agreed that street railway strikes are such an interference with public business that the municipality is justified in taking steps to prevent them. While no plan of action has yet been adopted, the opinion is advanced that all grants of franchises should have a clause providing for compulsory arbitration. This could be made binding only on the company, but it is argued that if the employees refuse to arbitrate they would lose public sympathy and the strike.

The Railway Commission has committed itself to municipal ownership, so far as the trackage and the other parts of the street railway plant actually in and a part of the street are concerned. But it has not yet decided in favor of public ownership of rolling stock, power houses, and other parts of the plant. The question of municipal operation has not been considered at all.

Syracuse Uses U. S. Voting Machine.

The Common Council of Syracuse (N. Y.) has adopted an ordinance authorizing the purchase of United States voting machines for the use of the city. The machines are manufactured at Jamestown, N. Y., and will be used for the first time in Syracuse at the November election. The machines have been used in other cities with complete satisfaction to all concerned. Those using them say they are simpler than the use of the blanket ballot and there is positively no way to cheat the machine.

—The fire committee of the Common Council of Newport News (Va.) has recommended the purchase of two metropolitan fire engines from the American Fire Engine Company of Cincinnati, O.

PUBLIC SAFETY.

Fire.

IDEAS OF SOME LEADING CHIEFS.

BENEFITS OF A SALVAGE CORPS—RELATIVE VALUE OF STEAM AND CHEMICAL ENGINE—USE OF RUBBER TIRES AND ROLLER BEARINGS.

A little while ago the editor of "City Government" addressed a letter of inquiry to the leading chiefs of fire departments throughout the country, for the purpose of securing their ideas upon several important matters. They were asked for an opinion as to the benefits of a salvage corps; the relative value of the steam and chemical engines; the value of rubber tires and roller bearings; and what should be the number of companies employed to protect a city of ten square miles.

The answers to these queries are still coming in and, doubtless, more will follow. The publication of these ideas will begin with this number and will continue in succeeding issues until all have been used.

CHIEF PARRIS, WASHINGTON, D. C.

"There is no salvage corps in this city. In reference to the value of steam fire engines and chemical engines I will say, that there is nothing to equal the advantages derived from a good steam fire engine where a good water supply is available. Barring accidents to machinery and with an abundant water supply, in a steam engine you have a fire fighter that is inexhaustible. The chemical engine, while the supply is limited, is also a valuable addition. While it is not capable of contending with a fire of huge proportions, it is, nevertheless, a fine machine to nip fires in their infancy. The chemical engines, of this department, I have found to be very valuable on alarms of fires where they were due, as they have been of much service in quickly reaching the fire and extinguishing it thereby saving wear and tear on hose and also diminishing the water damage to some extent. Of course there are steamers always on hand to back them up should the fire get away from them. In my opinion, the chemical engine and, of course, the steamer, are machines that no modern department should be without.

"This department has only one piece of apparatus that is ball-bearing, and while it has not proven entirely satisfactory, if roller-bearings would give the benefits claimed for them, they would be a good improvement. There are no rubber tires in use in this department and as it takes practical experience to demonstrate the value of a thing, I would not express an opinion regarding them.

"In reference to the protection needed for a town of ten square miles will say that it depends entirely on circumstances. A town with business and manufacturing houses, densely situated, should have an engine company to every square mile. In every town no portion of it should be further away than can be reached in three minutes from the time the alarm is sounded."

CHIEF DOWNING, LYNN, MASS.

"We have no salvage corps connected with our department, but there is a private one that attends fires. It often does good work, although it is on a small scale. We believe that a salvage corps, properly equipped, would be the means of saving great damage by water.

"Steam fire engines are a very important part of a fire department, and the chemical engine is fully as important. We have four chemical engines in service besides a combination chemical and hose wagon. We control nearly all of our fires with chemicals, using but very little water and very seldom a steamer, thereby saving great damage by water.

"We have no rubber tires on apparatus yet, but expect to have them on our large chemical, soon. We have just put a ladder truck in service that has roller bearings, but have not used it enough to pass an opinion on their merits.

As regards the number of companies required to protect a city with an area of ten square miles it would be difficult to say, as engineers have different views on the subject. It seems to me that it would depend very much on the height and compactness of the buildings, the kinds of business for which they were used and the material used or stored in them.

Our city has an area of eleven and one-third square miles. We have sixteen fire engines in service and one relief engine, four ladder trucks, four chemical engines and one combination chemical and hose wagon. It is said our city is well protected, but I think more apparatus should be added to the department."

CHIEF CANTERBURY, MINNEAPOLIS.

"We have a salvage corps connected with our department, but it is maintained by the insurance companies doing business in this city. I consider the salvage corps a good investment in any city as it saves to the insurance companies many times the cost of maintenance and no city of one hundred thousand population or more should be without a salvage corps.

"The steam fire-engine is indispensable to any city of our size as the water works system of mains is extended through such an area that it is impossible to get the proper amount of water pressure at the hydrant for fire purposes without great damage to the mains and, therefore, we must depend upon the steam fire-engine. No city should depend upon standpipes or reservoirs for more than 60 to 75 pounds water pressure on their system, for when they go beyond that the mains will not stand the pressure. A good fire stream should run about 150 to 180 pounds and often times about 200 or more for short lines in Siamese or water-tower.

"The chemical engine is, in my opinion, one of the best pieces of apparatus in use to-day. As far as small fires are concerned,—and a large number of ours are such,—they are handled by the chemicals and little damage is done by the water from them.

"We are using the rubber tires and roller bearings on all of our chiefs' bugles and will replace all wheels on hose

wagons and chemicals as soon as possible with rubber tires.

"As to the number of companies which would be required to protect a city having an area of ten square miles, it will depend largely upon the class of buildings to be protected, also upon the water supply. Five engine companies, two hook and ladder trucks and three chemical engine companies should take care of such a city, provided it had good water works. They should have at least 10,000 feet of two and one-half inch hose."

CHIEF RYAN, NORFOLK, VA.

"We have no salvage corps in this city. Such a corps is very beneficial to any city department, with its assistance in saving stocks.

"With the construction of our city it would be almost impossible to get along without either chemical or steam engines, as there are fires which would never be attempted to extinguish with chemicals, yet during the past year we extinguished at least 88 per cent. of our fires with chemicals.

"We use roller bearings on two pieces of apparatus and rubber tires on one. Both give satisfaction.

"The number of companies needed in a city with an area of ten square miles would depend entirely upon the construction of the city."

CHIEF MARJENHOFF, CHARLESTON, S. C.

"We have no salvage corps in this city.

Some twenty years ago one was supported by the insurance companies, but, not having permanent men, was very inefficient and was disbanded. I consider a salvage corps, properly organized with permanent men (not less than four for cities up to 70,000 inhabitants),—a valuable auxiliary to the department. We have none here now because the insurance companies consider it an unnecessary expense. It would cost at least \$2,500 per annum to maintain a company, and during the last seven years we had three or four occasions where a salvage corps could have saved some property, but the losses arising from what could have been saved, would not cover the expense of maintaining a corps.

"I have studied this matter carefully, and the only conclusion I can come to why this city is so free, of late, from extensive fires, is, first, our insurance people are generally very careful in taking risks. Second, we have more alarm boxes to the square than any other city I know of. Everybody, who applies, can get a key. We have over 900 keys distributed over an area of two and one-half square miles. Third, we never depend on hydrant pressure, but carry steam enough at all times, get to work immediately with powerful streams, and, therefore, have no need of claiming no water pressure on mains if a fire gets away. Fourth, we keep all of our ten steamers in first-class condition and always ready for immediate use.

"All of these conditions combined, have enabled us to put most all fires out before they had much headway. Hence, it has not been profitable to maintain a salvage corps here.

"As to the relative value of the steam and chemical engine: I liken the chemi-

cal engine to the skirmish line of an army going into battle. By teaching all my men to rely upon their own judgment and resources, and giving them credit for good work, the majority of the fires are put out by the 'scouts,' which are the three six-gallon fire extinguishers. Of course, at the same time, chemical engine hose is run out to be used if needed, and also water hose is run out from three steamers at once, without orders from chief or other officer. Thus everything is ready, with water in hose and nozzle shut, so there is not a second's delay in turning the water loose from one and one-eighth inch nozzles with from 125 and 200 pounds pressure behind it when needed. You will see by this that we make ready for any emergency, and if services are not needed, it is easy to make up and go home, and it is a good drill for the men to get to work quickly. We save with our chemical engine and extinguishers large amounts of property every year, which would necessarily be destroyed if we had to use water streams each time. I consider the chemical engine of the greatest value, if properly and quickly handled, and not too much dependence placed upon it when fire has any headway at all. My chemical engine has the right of way over all other apparatus,—even the chief's buggy must give way to it.

"I am much pleased with rubber tires on my buggy. Whereas formerly I twisted axles, and a few times came near upsetting in turning corners, the rubber tire prevents all this. We have one wagon with roller bearings, but being too heavy for one horse, we keep it in reserve now, and so, I am not able to express an opinion on this.

"Regarding the number of companies necessary to protect a city with an area of ten square miles: This, I think, could hardly be answered intelligently without further particulars, such as water pressure on hydrants, height of buildings, density of buildings, width of streets, and so forth."

(To be continued in September.)

Wilkinsburg Want's Paid Department.

Burgess James Horner, by his latest veto, has made the borough Council of Wilkinsburg quite indignant. Council at its last meeting on July 9, decided the town should have a paid fire department. Horner vetoed the measure saying it would be an unnecessary expense, as the present volunteer company is good enough. Many of the citizens are taking sides with Council. They claim the town has grown to such a size that a paid fire department is a necessity.

Several fine buildings have been built in the last year, some of them six or seven stories high, and the Councilmen say that in case of a fire in one of these buildings the loss to the town would be greater than the expense of supporting a paid fire department for years. After the first year, when the company would cost \$12,000, it could be maintained for about \$8,000 annually.

Large Demand for "Quick-as-Wink."

The W. J. Clark Co. of Salem, Ohio, are filling an order from Columbus, Ohio, Fire Department for a quantity of "Quick-as-Wink" couplings.

This being the third or fourth order for "Quick-as-Wink" couplings for Columbus, which we may suppose would not use anything but that which proves reliable and good as well as quick and convenient, it may be regarded as a pretty strong testimony in favor of the now quite famous "Quick-as-Wink."



International Fire Engineers.

The twenty-eighth annual convention of the International Association of Fire Engineers will be held at Charleston, S. C.,—that typical Southern city—Oct. 9-12, 1900.

President John P. Quigley, of Syracuse, N. Y., and Secretary Henry A. Hills have spared no pains in their preparations to make the approaching session the greatest in the history of the organization. Chief Marjenhoff has ably supplemented their efforts and, furthermore, as host of the occasion, he expects to give an example of Southern hospitality that will create a strong desire to repeat the visit.

The constitution provides that every fire department, salvage corps, insurance patrol and State association, embraced in the term international, is entitled to representation.

Inventors and manufacturers of all kinds of apparatus for the extinguishment of fires will be afforded every facility for the exhibition of their several inventions, which they may wish to display, and they are cordially invited to be present.

The second day of the convention will be reserved for exhibitors to display their various articles and improvements in fire apparatus.

The topics have been decided upon and assigned to the various chiefs throughout the country. They will deal with the methods used in extinguishing fires, new apparatus and a comparison with other countries in their methods of fighting the fire fiend.

The following men will participate in the program: Chief D. J. Swenie, Chicago; James Foley, Milwaukee; Captain E. J. Mitchell, Chicago; ex-Chief August Saltzman, Plainfield, N. J.; Chief C. E. Swingley, St. Louis; Edward Croker, New York; J. C. Baxter, Jr., Philadelphia; Fire Marshals Whitcomb of Massachusetts and Lawyer of Maryland; Chiefs George W. Sasse, Wilmington, Del.; Morris W. Mead, superintendent bureaus of electricity, Pittsburg; Chief W. C. Green, Concord, N. H.; G. H. Reinagel, Los Angeles; Chiefs George C. Hale, Kansas City; W. C. McAfee, Baltimore; James R. Hopkins, Somerville, Mass.

Firemen's Tax Exemption.

The firemen of New Jersey, by the provisions of a State law, are entitled to a \$500 tax exemption. The law reads as follows:

And be it enacted, "That all exempt firemen of any city, town, borough, township or fire district in this State shall be exempt from general and special poll tax, and from State, county and municipal taxation upon real or personal property or both, not exceeding in the aggregate five hundred dollars, which may be assessed against them or their said property, by authority of the municipal corporation in the service of which they became exempt firemen."

Fire Loss in First Half of 1900.

The increase in the fire loss of the United States and Canada during the current year has been so abnormal that interest in it has been awakened in general business circles as well as among fire underwriters. Few, however, will be prepared for the actual figures, compiled from the carefully kept records of the "Journal of Commerce and Commercial Bulletin," which show a total loss of \$103,298,900 for the first six months of the year 1900, as against \$65,699,750 for the same period of 1899.

The great difference between 1900 and 1899 is exhibited by months in the following table:

	1899.	1900.
January	\$10,718,000	\$11,755,300
February	18,469,000	15,427,000
March	11,498,000	13,349,200
April	9,213,000	25,727,000
May	9,091,900	15,759,400
June	6,714,850	21,281,000
Totals	\$65,699,750	\$103,298,900

The heaviest loss this year was the Ottawa-Hull conflagration, amounting to \$12,000,000, and the next in point of destruction of value, though taking precedence as to loss of life, was the Hoboken disaster. The Standard Oil fire is, of course, not included in these figures. There has also been an increase in the number of small fires. The months of April and June show greater advances than the others.

Fires of \$500,000 and over in destructiveness which have occurred since January 1, 1900, are presented in this compilation:

Philadelphia, Pa., several department stores	\$700,000
Lead City, S. D., various	500,000
Dayton, Ohio, tobacco factory and other	500,000
St. Louis, Mo., department store and other	975,000
Newark, N. J., department store and other	1,000,000
Pittsburg, Pa., department store ..	1,200,000
Ottawa-Hull, Ontario, conflagration	12,000,000
Sandon, B. C., various	700,000
Constable Hook, N. J., dock property and oil works	500,000
Fisher, Wis., various	500,000
Virginia, Minn., business portion of town	500,000
Bloomington, Ill., various	1,850,000
Pierce, Ariz., mining property and mill	500,000
Morenni, Ariz., mining property ..	800,000
Hoboken, N. J., steamship docks, storehouses, ocean steamers and cargoes and barges	5,350,000

The fires of the half year just closed may be classified as below:

	January	February	March	April	May	June	Total
\$10,000 to \$20,000	111	80	91	79	104	64	529
20,000 to 30,000	46	38	39	32	32	31	218
30,000 to 50,000	35	39	30	35	43	34	206
50,000 to 75,000	26	30	34	35	35	22	182
75,000 to 100,000	18	6	18	12	11	13	78
100,000 to 200,000	17	23	22	18	30	14	124
200,000 to 12,000,000	5	12	8	12	10	15	62
Total	258	228	242	213	265	193	1399

The officers of the fire insurance companies have had a turbulent experience during the past two years. Many companies have been forced to the wall, and others have had their financial strength so depleted that they must succumb before the January, 1901, statements are required to be filed. From present appearances insurance rates will need to be largely increased to keep up with the constant, serious drain on insurance capital.

Ohio's Assistant State Fire Marshals.

State Fire Marshal Hallenbeck of Columbus, O., recently announced the following appointments for the seven districts of the State:

First district—Walter Payne, Toledo.
Second—P. W. Parmelee, Burton.
Third—A. J. Fiorini, Dayton.
Fifth—H. W. Hart, Akron.
Sixth—John Ambrose, Cincinnati.
Seventh—Samuel Davidson, West Union.

J. K. Mercer, who was appointed in the fourth district, refused to accept, so that will be filled at a later date.

The appointees will begin work on August 1. The annual salary is \$1,000, with a maximum allowance of \$600 for expenses.

Snakes Send in Fire Alarm.

Within the last few days the fire department of Kearney, N. J., has been leading the strenuous life with a vengeance. Fire alarms have been coming in with remarkable frequency and in such strange and indefinite wise that the firemen haven't been able to tell what alarm box was indicated, and have gone careering about town shouting "Fire!" and placing themselves in imminent danger of sunstroke. Each time they have made the rounds of the place they have failed to find any fire, and at last they came to the conclusion that they were the victims of a practical joker. They resolved that if that joker was caught they would turn the whole force of water at the command of the department upon him until he was permanently extinguished. Finally they found the cause of all the trouble in the form of three snakes.

In the cellar at fire headquarters is a switch-board that controls the alarms. This switchboard is a box open at the top. Near by is a broken window. Several days previous as near as the firemen can reckon by the beginning of the alarm epidemic, three milk snakes crawled through the window and set out to make a happy home out of the box. In the course of time they became involved in the machinery. Their struggles to get free were duly registered by the faithful fire-alarm system in the form of alarms from widely separated districts. After this sort of thing had been going on for some time Ralph Young and Robert Agle, two of the firemen, went down into the cellar to make an investigation. Young put his hand into the box and felt something twine around it. With a yell he drew it forth with a two-foot milk snake.

The reptile didn't offer to bite him, but dropped to the floor and was scuttling off when Agle killed it with a club. Further investigation of the box brought to light two more snakes, both dead and one considerably entangled in the cog-wheels. The firemen are talking of having them stuffed as the original fire-alarm salamanders. They figure out that the broken window was an expensive matter, as it would have cost about 25 cents to repair it, whereas they have spent several hundred dollars' worth of energy in the sweat of their brows chasing false alarms that those snakes sent in.

Chief Kerner of the South Bend (Ind.) department has asked for and obtained a six weeks' leave of absence for the purpose of attending the International Congress of Fire Chiefs to be held at Paris August 10-12. The Chief goes at his own expense.

Fire Department Notes.

Pittsburg firemen have put in a bid for a larger pay.

Chief Croker of New York city rides to fires in an automobile.

John League has been appointed Chief of the Fire Department of Little Rock, Ark., by Mayor Duley.

After long delays the Councils of Buffalo have provided fire protection for the Pan American buildings.

Chief Barrett of Indianapolis wants the next meeting of the National Fire Chiefs' convention to be held in his city.

Chief Walker of the Scranton, Pa., department has resigned and his place has been filled by the appointment of Fred W. Zizelman.

The firemen's pension fund of the Louisville department will be increased about \$12,000 a year by the tax levy of one cent on the \$100 valuation of taxable property.

An ordinance has been introduced in the Columbus, O., Council providing for an appropriation of \$300 to construct and maintain a paint shop, for the use of the Department.

Chief Larkin, of Dayton, O., writes that the Commissioners are building two new engine houses. Three La France fire engines, one American, one water tower, one aerial truck, one service truck and one combination chemical and hose wagon have been contracted for.

During the recent spell of hot weather in New York, City Chief Croker issued a general order requiring every engine and truck house to have firemen standing by all day long with hose in their hands ready to play on every horse that passed, if the drivers were willing. It was appreciated by man and beast.

A Newark (N. J.) man has invented a fire alarm box to prevent the sounding of false alarms. The box is placed in a booth or cage, which can be entered by any one, but in order to sound an alarm, the door of the cage must be closed. The sounding of the alarm automatically locks the door, and the person who sounds the alarm can escape only if he has a key. It is proposed to furnish policemen and firemen with keys, and they can release themselves or other persons who may sound alarms.

Southern Railway.

The International Association of Fire Engineers will hold its next annual convention at Charleston, S. C., in October, 1900. This will give you a chance to enjoy the popular Southern Railway route, via Washington and Charlotte. Tickets will be sold for this occasion at specially reduced rates. The service offered by this route, for this occasion, will be the best on all of the Southern Railway trains. There is operated a perfect dining and sleeping car service. The lines of this road touch the principal cities of the South. For full particulars call on or address New York offices, 271 and 1,185 Broadway, Alexander S. Schweatt, Eastern Passenger Agent, 1,185 Broadway.

Police.**Berlin Police Not Slow.**

Captain Schuettler of the Chicago police, recently visited the city of Berlin, says the Chicago "Tribune," and if he had been inclined to regard German policemen as slow, he quickly changed his mind when he visited police headquarters. About the first place he was taken by the officer Police President von Windheim delegated to explain the Berlin system to him, was the "Ammelde bureau," where the names and residences of the entire population of Berlin have been stored away during ever so many years. Then he was shown the special register of the criminal population. Captain Schuettler turned to the Schulz family, which occupied any number of volumes by itself. There were all the Schulzes who had within thirty or forty years broken a window, refused to move on when told, got on a moving train when warned not to, or committed any other of the many crimes and misdemeanors in this law-governed country.

"I should think it would be an awful job to locate the records of a man where there are so many of the same name," said Captain Schuettler, no doubt thinking of the sinking of the heart one has upon entering the record-room of the Central Station in Chicago.

"It is not so long a task as you might suppose," said the director of the department. "We will try one."

Schuettler picked out a Schulz who moved to Berlin from Elberfeld some twenty years ago.

"Take out your watch and see how long it will require to discover what he did and how he was punished," said the director. "Ready?"

The director gave the index number to an assistant. He walked into an adjoining room and brought a book. The director opened and read the man's entire criminal record, which consisted in a single misdemeanor.

"How long did it take?" he asked.

"Fifty-eight seconds," replied Schuettler.

The official then explained that the records of the addresses of all residents of the city, and indeed of the whole country, made it virtually impossible for a criminal to escape after his identity is once known.

Schuettler could not refrain from expressing his envy of the German police.

"That is almost too easy," he thought, and his opinion was confirmed by the accounts of murders, robberies, burglaries, holdups, etc., which he read in the next day's papers.

Schuettler, in turn, aroused admiration for Chicago's patrol wagons and ambulance system.

"There is nothing similar here," he said afterwards when seen at his hotel. "There are, in fact, scarcely any patrolmen proper. The policemen stand on a corner or walk a certain short beat, but they dare not leave it without permission, even to answer an urgent call from a citizen. Their duties include many things besides catching thieves. They must watch the street cars and omnibuses and count the passengers to see that these conveyances are not overcrowded. They have to stop bicyclists from crossing forbidden streets, and to look out for fellows without lanterns."

"The Chief—the Police President—is a big government official with the duties of civil Governor as well as of thief-taker."

At the district stations the officers have so much writing to do, so many records to keep, so much bother with the people who fail to notify them of change of residence or of the employment of a new girl, or to get a baby buggy license, or pay their taxes, that they have little time left for what we consider police duties first of all.

"This work falls almost entirely upon the plain clothes men. There is one set called the political police, who work up information needed by the highest government officials. The criminal police, who are under entirely different management from the political, are divided into different departments. One lot handles robberies, another burglaries, another pickpockets, another murders, and so on. I should think there would be some advantages about such a division of territory. A man ought to become an expert in his line and to have a valuable acquaintance with the professionals of his class. I have not had sufficient opportunity to decide whether it has the drawback of making a man too narrow. I do not want to appear to criticize them after they treated me so nicely as they did, but there is an impression in the German press that they often proceed too methodically, applying certain rules to every case without sufficient study of its peculiarities. They stop to take photographs and make measurements when they might perhaps find a warm trail if they opened their eyes a little wider. Mind you, that is the complaint of the newspapers, not of myself.

"Berlin is a right lively town. I should think it would give the police lots to do. Why, some streets are livelier after midnight than at any time in the day, and I don't mean side streets, either. It is really difficult to navigate in Friedrichstrasse, which is to Berlin what State street and North Clark and Wabash avenue combined are to Chicago, after 11 o'clock in the evening. The crowds are usually quite orderly, however.

"Compared to American police the Berlin force is badly paid. The common officers get a quarter where bluecoats in Chicago get a dollar. How they live I don't know. Living is dearer in Berlin than in Chicago."

Thief Caught by a Telescope.

While some scientists were testing a powerful telescope from the roof of one of Rochester's (N. Y.) high buildings recently they discovered a thief at work over two miles away and by utilizing the telephone informed the police and had him placed under arrest.

Lorenzo Hanlon, 17 years of age, deftly abstracted a tub of butter from the rear of a farmer's wagon without the owner noticing it and, carrying it across the Vincent street bridge, secreted it beneath one of the piers, all of which was plainly witnessed by the scientists.

The police lay in wait for Hanlon, and when he came to secure his booty pounced on him and effected his capture.

After all this had happened an excited farmer appeared at police headquarters and informed the sergeant on duty that he had been robbed of a tub of butter.

Hanlon is now in jail awaiting his sentence, and the parties inspecting the telescope announce it to be in good working order.

The farmer is still mystified as to how the butter reached the police station before he did.

W. P. Kilgroe has been re-appointed Chief of Police of Bristol, Va.

St. Louis Police Demoralized.

The administration functions of the St. Louis Police Department were modeled after that of Cincinnati. Unfortunately for St. Louis some features were added and others omitted, so that the general results attained have been disastrous to the good reputation of St. Louis.

Under the direction of the new police commission the most despicable type of politics is infused into the operation of the department. The "Globe-Democrat," in a recent issue, said editorially, in this connection: "The Police Board can run up bills without limit for emergency men and incidentals, in addition to the cost of the regular force of over 1,300 employees, and any municipal representative who resists payment is fined \$1,000 and disfranchised. The requisition of the Police Board for the year is \$1,628,624, and emergency expenses are not included. Under the former law the police cost \$960,000 a year. No mystery is connected with the hole in the finances. It has been made and can be enlarged in defiance of all local authority in St. Louis."

Common sense and sound judgment will ultimately prevail in that thriving city, and, doubtless, some action looking to the remedying of present evils will be taken by the next legislature.

Police Items.

Police and fire telegraph wires in Syracuse (N. Y.) have been ordered under ground.

There is some talk of Buffalo's adding an automobile patrol wagon to its police department.

Frank McMahon has been appointed Chief of Police of Little Rock, Ark., by Mayor Duley.

Chief Kipley of Chicago has issued special instructions to his force regarding the treatment of Chinese in the city. He insists they shall be treated justly.

Owing to the small appropriation for the maintenance of the Columbus (O.) police force, the usual vacation of a week off with pay cannot be allowed the patrolmen. This is hard luck.

The captains of the Buffalo (N. Y.) police have discarded the double breasted and donned the single breasted coat. Another innovation is a substitution of white-duck caps for the old heavy, blue cap.

The Department of Public Safety of Cleveland, O., has contracted with the Gamewell Fire Alarm Company for a complete and up-to-date patrol alarm system. It is expected that it will be in operation by the first of the year.

Chief Austin of Birmingham (Ala.) has been making a vigorous crusade against pool selling and gambling. His efforts have been marked with such success that a mass meeting of the citizens was called and resolutions expressing general appreciation and commendation were passed.

Superintendent of Police Tyler of Columbus (O.) passed the 48th milestone of his life on July 9th. His friends at the central station and Director of Public Safety Evans heard about it before hand and waylaid him on that date, in a body, presenting him with a magnificent extension dining table and twelve leather-covered chairs.

Fate of Fat Policemen.

At the suggestion, it is said, of the Society for the Prevention of Cruelty to Animals, the mounted policemen are being weighed. Some of them have grown so stout through lack of exercise that their horses can hardly stagger under them, and they are useless for catching runaways, says the New York "Journal."

The Commissioners intend to put back on pedestrian duty all men weighing more than 180 pounds. It has been found that there are horsemen of 250 pounds avoirdupois whose steeds suffer from nervous depression and downward curvature of the spine.

The surgeons of the department say that the adipose is due to the violation of the scientific principle that persons whose work is purely intellectual should avoid starchy foods. The police assigned to the park eat large quantities of pie and butter instead of subsisting on weak tea, dry toast and stewed fruit with no sugar in it, which is the diet indicated for persons not in a muscular employment.

The stout policemen after being weighed are driven into a room, where their pedigrees are taken. Then Chief Devery picks out for them a nice long beat in the Bronx, where they will have to pursue the escaping goat and climb up high crags from which to signal to bluecoats that all goes well. This work will reduce them, and after they have burned off enough superfluous blubber they will be put in the saddle again.

A device has been invented to give the police horses support when their mounts are too fat. It consists of a pole on a wheel strapped underneath the body, the stout rider taking his place exactly over the trolley brace. Although leading humanitarians like the scheme, Chief Devery has failed to give his sanction, and it cannot be put in force until he does.

A bluecoat weighing an eight of a ton, who was taken from his quadruped and assigned to climb rocks at Morningside Heights, said that unkind things had been done to him.

"This is entirely uncalled for," he declared. "The department gets me into luxurious ways, and then throws me down. Whose fault is it that I weigh what I do? If some day I am found at the top of a rock suffering from apoplexy they'll be sorry they treated me this way."

There were tears in his voice. When the horses see the new men assigned to them they are visibly pleased, and whinny their satisfaction. They will eat less under the new order of things, go faster, catch more runaways and last longer.

Chief Elton of Los Angeles (Cal.) asks for an addition of twenty-five patrolmen to his department.

Columbus (O.) policemen are now receiving weekly lectures, for the purpose of instructing them as to their duties, powers and privileges.

Following the custom of the Lancaster (Pa.) department that of Columbus (O.) is talking of instituting pistol practice for the patrolmen.

The police force of Massillon (O.) has asked the City Council to provide it with wheelbarrows, inasmuch as the appropriation for the maintenance of the department will not warrant the purchase of a patrol wagon. Massillon is the largest city in the State without a patrol system.

Health.

Philadelphia's Raid on Impure Food.

Through the joint efforts of the Bureau of Health and the local agents of the Dairy and Food Commission, of Philadelphia, a crusade has been instituted against the bakers, milk dealers, produce venders and others doing business in impure food stuffs. For some time past the agents of the department have been prosecuting those dealers in impure food, but the present raid is to be of greater magnitude and of far more importance to the public than any effort on the part of the State officials up to this time.

The health officials have of late made discoveries showing that many of the smaller bakeries are in an unsanitary condition, and that breadstuff is being used in these unwholesome shops that is very conducive to disease. In some of these places putrid flour in large quantities has been discovered, while actually being utilized for baking. Analysis of this has shown a large percentage of bacteria and germs of the order that produce fatal diseases. As a result, there has been a conference of those in charge of the two departments mentioned, and the subordinates of both were called together and a raid was begun on unclean bakeries.

The plan is to confiscate all the impure flour found on the tour, and when it is ascertained that the bake shops are not kept in a clean condition they will be closed until the necessary repairs are made. At the same time, the milk houses on the tour will be inspected and all dealers whose establishments and utensils, as well as product sold, are not as the sanitary laws require, will be placed under arrest and their establishments will be put under the legal ban.

A rigid investigation will also be made of the grocery stores and the shops selling country produce.

The discoveries thus far made of places injurious to health are principally in the poor sections of the city. The inspection will not be confined to any part of the city, but will take in the entire city of Philadelphia, and will continue throughout the entire summer. All of the agents of the Dairy and Food Department of this district and the inspectors of the Bureau of Health will be put on the work and a vigorous fight will be made to give the consumer good, wholesome bread, pure milk, and unsullied green groceries. It is the determination of those in charge to rid the markets of disease-breeding food stuffs, and proprietors of all places showing contamination will be arrested and made to suffer the penalty of the law.

Michigan State Board of Health.

The State Board of Health of Michigan evidently believes in the old adage: "An ounce of prevention is worth a pound of cure." It employs all the usual methods for the checking of disease and the prevention of epidemics, and several unusual methods to supplement the ordinary work.

Among the latter is the monthly publication of what is called the "Teachers' Sanitary Bulletin." The size of the periodical is insignificant as compared with the results achieved through its agency, it having but from eight to sixteen pages.

Every teacher in the public schools receives a copy free and is required to take

heed to all its admonitions. Moreover, the leaflet entitled, "Dangerous Communicable Diseases, How Spread, How Restricted and Prevented," furnishes information which every teacher is obliged to impart by oral and blackboard instruction to the pupils in his or her charge. The benefits of this systematic effort to educate the general public upon these matters are of incalculable value.

Under such an administration it is not surprising that the death rate of all infectious and contagious diseases is steadily decreasing in Michigan.

Health Items.

A movement is on foot in Camden (N. J.) to provide for public baths in the city.

These are the days when the milk-embalmer is kept moving by the energetic crusade of up-to-date health officers.

After three months' waiting the complete organization of Jacksonville's (Fla.) Health Department has been effected. Dr. J. C. L'Engle, Major J. H. Durkee and Captain W. M. Davidson are the members of the Board.

One of Troy's (N. Y.) barber shops has adopted Boston's method of sterilizing razors, brushes, cups, etc., in barber shops to prevent the spread of disease through shaving. It is proposed to introduce a resolution in the Common Council to prepare an ordinance requiring the barbers of the city to employ similar means of sanitary cleanliness.

Some of the young women of Cleveland (O.) are continuing an organization of last summer the object of which is to provide pure milk and healthful food for infants. Last year more than 100 little ones were the recipients of this commendable benefaction. The mortality rate was reduced from 35 to 8 per cent. This summer the organization hopes to supply more than double the number of little ones with healthful food.

Streets Cleaned at Night.

The street cleaning department of Camden, N. J., is adopting some of the modern methods of street cleaning. Among other changes recently effected is the changing from day to night work. Commissioner Mohrman is desirous of bringing his department up to the highest standard attainable. He is doing remarkably well and this new improvement is giving general satisfaction.

Under the new system the "white wings" escape the burning rays of the sun and it is a welcome change to the housewives. When the streets were cleaned in the day time great clouds of dust were raised, despite the fact that the sprinklers preceded the sweepers, and if the women wanted their furniture kept clean it was necessary to close the windows and almost smother to death. Now this will be done away with. Another good feature of the new system is that the men can work without any interference from teams.

Some citizens of Knosha (Wis.) have a plan for cleaning their streets by levying a tax of ten cents per lineal foot of property abutting on the streets. It has been estimated that that would raise a sufficient fund to provide for the thorough cleaning of the streets twice a week throughout the season.

Finance.

Licensing Slot Machines.

From time to time efforts have been made to suppress the nickel-in-the-slot machines which have been in operation in Sacramento for a number of years. Arrests have been made for operating the machines, on the ground that they come under the head of banking games, but no amount of prosecution has succeeded in stopping the machines. It has been contended by some lawyers that the slot machine is a banking device, pure and simple, while there are others who hold that it is not.

Slot machines are now operated in the cities of Stockton, San Jose and San Francisco under license and it is claimed by the authorities of those cities that quite a snug revenue is derived from the new system. It is known that large sums of money have been collected in this city for the protection of men who owned or rented slot machines. The money, it was claimed, was collected for the purpose of employing attorneys and for paying fines in the case of conviction.

It is now proposed to license the slot machines in Sacramento, and an ordinance with that end in view has been introduced to the Board of City Trustees.

Among other provisions the ordinance will contain the following:

Section 1. Every person, association, firm or corporation owning or having in charge any machine or apparatus from which, on deposit of a 5-cent piece or any other piece of money or article representing money or value money, metallic checks or disks, or any other representation of money is ejected or delivered from said machine, or whereby the player or person operating said machine, or any other person is entitled to receive money, metallic checks or disks, or any other representation of money, shall pay a license of fifteen (\$15) dollars per quarter for each machine so used.

Every person, association, firm or corporation owning or having in charge any machine or apparatus in which, on deposit of a 5-cent piece or any other piece of money, or article representing money or value in said machine or otherwise, certain cards are exposed, or figures, checks, numbers, names or marks are exposed or ejected from said machine, whereby the player or person operating said machine, or any other person, is entitled to receive cigars, cigarettes, liquors or other merchandise, shall pay a license of ten (\$10) dollars per quarter for each machine so used.

The license must be kept displayed on said machines at all times.

Section 2. Every person, association, firm or corporation who shall violate any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine of not more than five hundred (\$500) dollars, or by imprisonment not more than six (6) months, or by both such fine and imprisonment.

Section 3. This ordinance shall take effect and be in force five days from its passage.

The Buffalo department may provide its Chief with an automobile in which to ride to fires.

The Gainesville, Fla., department will soon have a new fire alarm system in working order.

PUBLIC WORKS.

Water.

PUBLIC WATER SUPPLIES FROM DRIVEN WELLS.

PART V.—DESCRIPTION OF SEVERAL PLANTS (CONTINUED)—EFFECT OF RAINFALL—SANITARY PROTECTION OF GROUND WATERS.

By E. Kuichling, C. E.

DESCRIPTION OF SEVERAL PLANTS (CONTINUED).

The second plant at Lowell was located in the same valley as the first one, but somewhat nearer its head. It was completed in 1896, and consists of 120 two-inch wells from 45 to 50 feet deep arranged in three sections, two being in the same line and the third at right angles thereto at the middle. The wells of the first two sections were driven at regular intervals of 25 feet in two straight rows 12 feet apart, and are connected with the 12-inch cast-iron suction main, which is placed midway between said rows, by lateral branches set at an angle of 45 degrees; but in the third section the wells were spaced only 12 feet apart longitudinally, as about 300 feet of the line passed over bad ground where no permanent wells could be obtained, and every 12-foot length of suction pipe had to be supported on four piles. Each of the small well-branches is provided with an independent stop-valve. The suction mains were originally laid on or near the surface of the ground in order to avoid excavating trenches in the very wet subsoil, but it was soon found necessary to lower them about 5 feet, which was readily accomplished after the water-table at the site had been considerably reduced by vigorously pumping the wells for some time. The aggregate length of the three sections of 12-inch suction pipe is 1,519 feet, and they are laid on a slightly descending grade from the large cast-iron receiver or separator placed at their junction. It may also be added that the drainage area of the valley above the first plant is about 22 square miles, and that the ordinary capacity of the two plants is about 5,000,000 gallons per day.[†]

The third plant is in a different watershed, and was completed in 1897.[†] It consists of 169 two and one-half inch wells varying in depth from 27 to 40 feet, and spaced at regular intervals of 24 feet staggered in two straight rows 12 feet apart. The suction main is laid about 3 feet below the surface on a pile foundation midway between the rows, and also on a true grade descending from the pumping station at the middle toward each end. Its length from the receiver is 2,056 feet, which embraces 13 feet of 20-inch pipe extending from the receiver to the main line, 1,152 feet of 14-inch, 326 feet of 12-inch, 170 feet of 10-inch, 130 feet of 8-inch, and 265 feet of 6-inch pipe. All of this pipe is of cast-iron, in lengths of about 12 feet with flanged ends, and each piece in the main line is made with a short lateral 2.5-inch branch forming an angle of 45 degrees with the axis, thus causing all of the pipe to be classed as "special castings." This mode of construction was thought to be much better than the usual one of placing a short special casting or branch for each well or pair of wells, as the number of joints in the main line is thereby greatly reduced. The utmost care was taken to make all joints perfectly tight, and every pipe or casting was tested for leakage of air before being laid by securely closing the ends and lateral openings, and then forcing in air from a small compressor worked by hand while the casting was submerged in a tank of water. Many of the pipes or castings which had successfully passed the usual water pressure test at the foundry, were found to be defective under this simple proof, and of the first shipment more than one-half was returned to the manufacturer. Most of the standard small special castings for the branch pipes also proved to be defective when thus tested, and the contractor was obliged to order extra heavy ones made to meet the requirements.

[†]Papers by Geo. Bowers, C. E., in Jour. N. E. Water Works Assoc., June, 1896, and Sept., 1898; Vol. 10, p. 226-9, and Vol. 13, p. 30-35.

The connections of the suction main with the wells were made in the following manner. To the top of each 2.5-inch well-tube a tee-branch, with curved side-outlet and plugged upper end, was attached at the proper grade. A short piece of 2.5-inch wrought-iron pipe having a stop-valve of the same size at one end was then screwed into the socket of the slanting branch of the main pipe. This was followed by a piece of 2.5-inch lead pipe about 3 feet long, one end of which was soldered to a short screw nipple at the valve and the other end to a flanged nipple. The remaining distance to the side-outlet of the aforesaid tee-branch was then filled out with a piece of 2.5-inch iron pipe, cut to the right length and fitted with a flange for making the final joint at the end of the lead pipe. By means of the flexible lead pipe any small error in grade or line was easily corrected, which would not have been the case with the rigid iron pipe alone. The suction mains are connected with a large horizontal receiver or separator, 11 feet long and 6 feet in diameter, and each pumping engine is independently connected with the receiver. It is also stated that the above-described air-test of the castings and fittings was done in the field and proved to be a valuable precaution, as this plant has been very free from air, whereas in the first and second plants a vacuum of only about 23 or 24 inches of mercury can ordinarily be maintained. The cost of the three plants is given at about \$265,000.

At Brookline, Mass., a very successful driven-well plant for supplying ground-water at the rate of 5,000,000 gallons per day was constructed in 1892-4 under the direction of Mr. F. F. Forbes, C. E., superintendent of the municipal water works.^{††} It consists of 160 two and one-half-inch wells, from 35 to 95 feet deep, spaced at intervals of about 39 feet along a suction main 6,269 feet in length, the top of which was laid from 6 to 8 feet below the surface of a flat strip of land adjacent to the Charles river, and so as to bring it about 5 feet below the usual summer level of the stream. This main is composed of 2,054 feet of 24-inch, 2,093 feet of 20-inch, 531 feet of 16-inch, 1,427 feet of 10-inch and 155 feet of 8-inch ordinary cast-iron bell and spigot pipes, with short Y-branch castings of special design for each well. The 24-inch pipe is connected directly to the pumping engines without any intermediate air-separator or sand-receiver, and the entire line is laid on a true grade with a fall of only 6 inches to its further end. All of the pipe joints were run with lead in the usual way, but extra care was taken in the calking to insure tightness; and to prevent any future settlement, the pipes were supported on 8-inch wooden blocks placed on a timber platform at the bottom of the trench. The subsoil of the excavation was rather fine sand completely saturated with water, and during the laying of the pipe a 6-inch rotary pump was kept running day and night to keep the bottom reasonably dry. The main was laid at the depth mentioned both in order that more water might be drawn from the ground, and to avoid as much as possible the evil effects of expansion and contraction due to changes of temperature.

The average depth of the wells was about 50 feet, and at the proper grade of the suction main each tube was provided with a 2.5-inch tee-branch having a curved side-outlet, the 2.5-inch wrought-iron pipe then being carried up to about 1 foot above the surface of the ground and tightly capped. The side-outlets of the tee and aforesaid Y-branches were all tapped to a uniform special templet for a 2.5-inch screw nipple at the foundry before the castings were coated with pitch and shipped; and the connection between them was made with two short pieces of 2.5-inch lead pipe, weighing 11 lbs. per lin. feet, and an interposed flanged stop-valve, one end of each piece being carefully soldered or sweated to a brass nipple screwed into said outlets, and the other to a similar nipple screwed into the companion flange at each side of the valve. The nipples were made to order of the best steam metal, and were delivered untinned in order that any defects might easily be found. The flange joints at the stop-valve were obviously made last, as the lead pipe admitted of a rapid adjustment of the various parts. All materials and workmanship were rigidly inspected, and as a consequence the plant has continued in

operation for several years without trouble from air-leaks. The average cost of each well was about \$48, which includes the proportional cost of driving and pulling up 41 poor wells; and the average cost of the labor required in driving them was \$0.21 per lin. foot. It may also be added that the pumping is done only in the day time, and that before commencing work in the morning the ground-water level is usually about 5 feet above the top of the suction main, and falls gradually to a level 2 or 3 feet below its bottom when the pumps are stopped in the evening.

At Cohasset, Mass.,* the plant was built in 1886 and consists of 64 2-inch wells, driven in a flat meadow to depths of from 18 to 38 feet at intervals of about 24 feet in two straight and parallel lines, each about 65 feet long and 80 feet apart, also in a central transverse line about 150 feet long from the first line to the sand-chamber, and lastly in a short line extending from the latter in one direction only. The subsoil was here formed of successive layers of muck, sand, hard-pan and clay, below which a water-bearing stratum of fine gravel, 3 feet thick, was found overlying the bed-rock. The suction main has an aggregate length of 1,902 feet, and is composed of 478 feet of 10-inch, 676 feet of 8-inch, 459 feet of 6-inch and 239 feet of 4-inch cast-iron bell and spigot pipe, laid in the usual way with lead joints at depths of from 1.5 to 7.0 feet below the surface, and the sand-chamber being located in the line of the largest size of pipe at a distance of 407 feet from the pump. To save a little expense, the wells were connected to the suction main without intermediate stop-valves, although a stop-valve was placed in each of the several lines of main pipe which entered the sand-chamber, and p. 189.

the end of the main pipe from the latter was connected directly to the pump. As is usually the case, the increasing demand for water in the village resulted in a considerable lowering of the original ground-water level at the site of the driven wells, and in 1888 it fell below the suction main, thereby allowing air to reach imperfections in the pipe and lead joints. Much trouble was then experienced with the pump, and a remedy was sought by inserting a tee-branch with a short vertical extension in the 10-inch suction pipe near the pumping station, and exhausting the air therefrom with a small air-pump, also by finding and stopping all discoverable leaks in the several lines of pipe. For a time this was successful, but eventually the trouble recurred with greatly increased intensity by the complete failure of some of the short wells, which allowed air to enter from the drained stratum of gravel in large quantity. These were finally located and their connections with the main pipe provided with stop-valves, as should have been done originally. It was also found that the device for removing the air was inadequate, and that the use of a capacious separator would have been much better.

The plant at Plainfield, N. J.,** was built in 1891 and consists of 20 six-inch wells sunk from 35 to 50 feet deep into a bed of water-bearing gravel. They are spaced at intervals of 100 feet staggered on both sides of a straight wrought-iron main suction pipe ranging in diameter from 8 inches at the ends to 12 inches in the middle, where a somewhat larger pipe carries the water for a short distance laterally to the pumps. The wells are thus located on a strip of land 1,000 feet long by 25 feet wide, with the pumping station at one side of the middle and the suction main divided by stop-valves into two sections of 500 feet length. Each of the 6-inch well-tubes is provided at the bottom with a suitable strainer, and at the top with a cast-iron shell enclosing and supporting a tee-branch of special design. This branch has a vertical bore of 4.5 inches, with a socket at the bottom for making a screw joint with a 4.5-inch wrought-iron drop-suction pipe 25 feet long, a flanged top for receiving a deflecting filler and tightly fitting cap, and a curved side-outlet enlarging to a diameter of 5 inches and provided with a flange for connection with a stop-valve of the same size. The shell is vented on the sides to admit air freely into the space between the inner and outer castings and between the drop-suction pipe and well-tube, thus making the latter practically

*Paper by D. N. Tower, Supt., in Jour. N. E. Water Works Assoc., March, 1898; Vol. 12.
**Paper by L. L. Tribus, C. E., in Trans. Am. Soc. C. E., Vol. 31, pp. 371-396; 1894.

^{††}Jour. N. E. Water Works Assoc., March, 1897; Vol. 11, pp. 195-201.

an open well with respect to pumping; and the flanged cap is fitted with a small cock to which a vacuum gauge can be applied when desired. The tee-branches in the suction main for connection with the wells are of cast-iron with flanged 5-inch side-outlets, and from each a similarly flanged 5-inch cast-iron pipe extends horizontally to within 2 or 3 feet of the stop-valve at the top of the well. On the side facing this lateral pipe the 5-inch stop-valve has a bell or hub for an ordinary lead joint, and the gap just mentioned is finally closed with a piece of pipe flanged at one end only and cut to the required length. The top of each well is enclosed in a brick manhole for convenience of access and observation. Originally the suction pipe system was laid near the surface, but in consequence of the depression of the natural water-table by the pumping, it was afterwards lowered 8 feet along with the pumps.

For the new plant at Wellesley, Mass.,[†] Mr. Freeman C. Coffin, C. E., required the suction main to be of cast-iron pipe, with diameters ranging from 6 to 16 inches, and the usual bell and spigot ends; the pipes to be laid true to line and grade with hot lead joints carefully calked so as to be air-tight. Each section of the main pipe and lateral well-connections, as far as the 2.5-inch stop-valve near the top of every well, was to be tested in open trench by filling the excavations with clear water and then compressing the air in the pipes to a pressure of 50 pounds per square inch; all leaky joints or defects to be made tight or repaired in a satisfactory manner until this pressure is maintained without further pumping, and no back filling of the trenches to be done until said test had been fully performed. To insure the use of sound materials and workmanship, the contractor was required to keep all the work in good repair for a term of six months after its completion, and to correct promptly during that time all leaks and failures of every description. The wells were to be of 2.5-inch wrought-iron pipe, with strainers as previously described; each well to be cut off at the top to receive a tee-branch with long-curved side-outlet 6 inches lower than the center of the main to which it is to be connected; a short horizontal piece of 2.5-inch wrought-iron pipe to be screwed at one end into said side-outlet and at the other into the companion flange of the 2.5-inch flanged stop-valve, and the gap between the valve and suction main to be closed with a piece of similar pipe cut to the proper length, the final joints being made with the companion flanges of said valve; all screw and flange joints thus made to be perfectly air-tight.

All main stop-valves used in the suction system were to be thoroughly tested by closing the valves to their seats and then applying an air pressure of 100 pounds per square inch to the body while the entire valve is immersed in clear water; this pressure to be sustained without leakage; the valves shall then be opened wide and closed three times, whereupon the air pressure shall again be applied to discover if the turning of the stem causes leakage in the stuffing box. The 2.5-inch valves and flanges shall be tested in a similar manner under water, by screwing plugs into both ends and applying the air pressure, both with the valve open and shut, and with the companion flanges properly connected to the valve. If leakage is discovered in any part of any valve, it shall be optional with the engineer whether to have it corrected or to reject the valve entirely.

At the recently built plant for Camden, N. J.,^{*} there are 3 ten-inch, 85 eight-inch and 13 six-inch wells, arranged in four irregular groups in a comparatively narrow strip of marshy meadow land along the Delaware river and a tributary creek about six miles above the city. The surface is here on nearly the same level as mean tide, and high water is partially excluded by dikes. The site embraces about 100 acres, its length being about 7,400 feet from east to west, and its width ranging from 200 to 1,000 feet; and the pumping station is located on the south side about 2,800 feet from the west end and 4,600 feet from the east end. Two distinct water-bearing strata of coarse white sand and gravel of considerable thickness are found at minimum depths of about 40 and 80 feet respectively, and the normal water-tables pertaining thereto are practically at tide level, thus causing the water in the wells to rise nearly to the surface of the ground in some cases and a little above it

in others. Eleven of the said wells are sunk to depths of from 50 to 70 feet in the upper stratum, and ninety to depths of from 90 to 125 feet in the lower one. Three of the groups of wells are operated by siphonage with two suction mains into a large collecting well or cistern in front of the pumping station; while in the fourth group, which is at the eastern end of the territory and farthest distant from said station, the water is lifted by compressed air into the branch leading to each well, whence it flows by gravity into the long delivery main and through the same into the said cistern. The latter is 30 feet in diameter and 35 feet deep, and has in its concreted bottom two additional 10-inch wells sunk into the lower water-bearing stratum, besides two 35-inch

The first or western group consists of 36 eight-inch and 12 six-inch wells, arranged approximately in three rows about 250 feet apart and spaced about the same distance apart longitudinally, although a number of the wells are much closer together. The main suction pipe is in the line of the middle row, with a slight rising grade from the most remote well to the large collecting cistern where it turns vertically downward to near the bottom, thus forming a siphon with any of the tubular wells. In its length of about 2,500 feet, its diameter gradually increases from 16 to 30 inches as wells are added. The second group consists of 1 six-inch and 29 eight-inch wells, distributed irregularly at intervals of from 100 to 250 feet in a trapezoidal area whose middle is about 1,500 feet east of the pumping station. The wells are connected in this area by lateral pipes to four principal branches of the main suction pipe, which is 30 inches in diameter and extends easterly from the aforesaid cistern for a distance of about 800 feet before meeting the first minor branch. From the latter point the same diameter is continued for 300 feet farther to the junction with the second principal branch, beyond which the main line continues for 900 feet more with diameters gradually reducing from 24 to 12 inches. This second suction main and its branches are laid in the same manner as the first, with slight rising grade and vertical drop at the collecting cistern. The third group consists of 13 eight-inch wells connected with two suction mains, about 650 and 700 feet long and 250 feet apart, extending northerly from the aforesaid two 30-inch mains at points east and west of the cistern. These two subsidiary mains range in diameter from 8 to 16 and 18 inches respectively, and each is provided with a stop-valve at its junction with the main line, the same as all other branch and lateral pipes.

On the summit of each 30-inch main at the cistern, an air-chamber is attached and connected to an independent air-pump in the engine room; and by thus exhausting the air from the pipes, at the same time keeping down the water level in the collecting cistern by pumping therefrom, the two main suction systems will siphon the water from the three groups of tubular wells into said cistern. The two 30-inch mains are also connected independently and directly to the pumping engines by means of by-passes, so that either or both methods of obtaining suction may be employed. It should also be added that the top of each well is cut off at the proper grade and tightly fitted to a cast-iron tee-branch, which is set vertically and has an air-tight cover at its upper end; that the side-outlet is then connected with the horizontal lateral pipe, which is of the same size as the well, thereby making the well-tubes an integral part of the suction systems; that the lateral pipes generally enter the collecting branches at an angle of 45 degrees; that the connection of the branches with the mains is made in a similar manner, and that provision for an ultimate permanent lowering of the ground-water level has been made by placing the floor of the engine room 10 feet below the surface of the land.

The fourth group consists of 3 ten-inch and 7 eight-inch wells, located at the eastern end of the territory and arranged somewhat irregularly on both sides of a 20-inch cast-iron main pipe 4,596 feet long, which is laid with a slight descending grade on or near the surface to the aforesaid large collecting cistern. As already mentioned, this group of wells is operated by compressed air which lifts the water into the lateral branches and collecting main under sufficient pressure to enable it to flow by gravity into said cistern. The air is compressed in the pumping station to a pressure of about 47 pounds per square inch, and is conducted to the wells by a 7.25-inch wrought-iron main pipe and suitable laterals, the main pipe gradually reducing in size until its diameter is 4 inches at the last well. At the top of each well-tube, a flanged quarter-bend of special design and easy curvature is attached, and connected with a flanged stop-valve of the same size as the well; and beyond the valve, ordinary cast-iron bell and spigot pipe with lead joints is used for both branch and main. The upper part

of each bend is provided with a flanged side-outlet, through which a 1.5-inch wrought-iron air pipe passes vertically down into the well far enough to give about 60 per cent. submergence, the air escaping from a series of holes in the lower portion of the pipe. To permit the removal of an undesirable quantity of air from the collecting main, a 10-inch stand-pipe about 10 feet high was placed at its extreme end, but it was plugged after trial as the 2.5-inch main does not run full, and the air is now allowed to escape at the open end of the pipe at the large cistern.

At Galveston, Tex.,[†] the new plant which was completed in 1895 consists of 3 nine-inch and 27 seven-inch flowing wells, sunk by the rotary hydraulic process through earthy formations to depths of from 750 to 850 feet into a thick stratum of water-bearing sand. They are located at intervals of from 300 to 750 feet, with an average of 545 feet, along a nearly straight and level line 16,350 feet in length which is divided into two parts by a large collecting basin or reservoir, one part having in it 16 wells and the other part the remaining 14 wells. Standard wrought-iron drive pipe, with strainers from 20 to 35 feet long, depending on the thickness of the sand stratum, was used for the wells. At 2 feet above the surface the water flowed freely and had a static pressure of from 5 to 7 pounds per square inch, thus enabling each of the two series of wells to be connected into a cast-iron pipe conduit discharging by gravity into the said basin. To secure reasonable grades and dimensions, and also to provide for some future permanent lowering of the subsoil water level, these two collecting conduits were laid at an average depth of 9 feet below the surface of the ground, each line beginning with a diameter of 14 inches at its extreme end, and gradually enlarging as wells are added until a diameter of 30 inches is reached, which is continued to the intermediate basin or reservoir. The well-tubes were cut off at the grade of the conduits, and each was capped with a flanged tee-branch, set vertically with closed top and having an 8-inch side-outlet to which a stop-valve of the same size was bolted; the opposite end of the valve was provided with a bell, and a short piece of 8-inch cast-iron pipe was then laid therefrom horizontally to the Y-branch in the conduit, which was about 5 feet distant.

The top of every well, along with its attached stop-valve, is enclosed in a brick manhole having a suitable iron cover a little above the surface of the adjacent ground. For the mains and branches, ordinary bell and spigot pipe with hot lead joints was used, but extra care was taken in the calking. It was required in the specifications prepared by Mr. Wynkoop Kiersted, C. E., that the entire system of pipes should be tested on its completion with a hydrostatic pressure of 100 pounds per square inch, and that this pressure should be maintained until satisfactory evidence was obtained that all joints were perfectly tight. This precaution was deemed expedient as it was possible that suction might have to be applied to the main conduits and wells at some future time in order to increase the yield. At the collecting basin, whose use is not yet necessary, the two 30-inch conduits are 11 feet below the surface and connect with by-passes to a 30-inch cast-iron gravity main, which conveys the water to the city 19 miles distant. The available fall is, however, comparatively slight, and hence provision was made in the plans for erecting a pumping station and stand-pipe at the basin whenever the necessity therefor may arise.

In the foregoing, the principal features of several American driven-well plants have been outlined, and the descriptive part of our subject may be concluded with a brief account of two recent German plants. At Leipsic,^{*} the public water supply is obtained from 324 wells driven into a bed of saturated sand and gravel, presumed to be an ancient river channel, underlying an extensive plain about 13 miles from the city. This permeable formation is about 3 miles wide and from 50 to 70 feet deep, and the wells extend nearly across it in a straight line. The first series of 140 wells were sunk in groups and covered about one-third of the distance; in the second set of 90 wells, a rectilinear spacing of 33 feet was adopted; and in the third series, which was under construction in 1894, the straight alignment was continued with 94 wells driven 60 feet apart. These latter wells were formed by first sinking a 12-inch iron casing to the required depth, whereupon a 7-inch wrought-iron tube with a copper strainer 16 feet long was introduced, and the casing pulled up. Inside the permanent 7-inch well, a somewhat smaller copper drop-suction pipe reaching nearly to the bottom

[†]Specifications given in "Water Works for Small Cities and Towns," by John Goodell. New York, 1899.

^{*}Described by L. E. Farnham, City Engineer, in "Engineering Record," May 6, 1899, Vol. 39, p. 520-2; and "Engineering News," May 11, 1899, Vol. 41, p. 297-8. cast-iron pipes which extend into the upper stratum and were used as drainage sumps during construction.

[†]Described by R. H. Peek, C. E., Supt. of Galveston Water Works, in "Engineering News," March 3, 1898, Vol. 39, p. 138.

was placed, along with a 0.75-inch pipe for taking samples and observing the water-level. On its completion, each well was washed out or cleaned by attaching to its top an electric pump, operated from a trolley wire running over the site, and pumping rapidly until all the fine sand in the vicinity of the strainer was removed and replaced by coarse material.

The natural water-table is here near the surface of the ground, and the drop-suction pipes in the wells of the second and third series are connected by horizontal lateral branches with two cast-iron collecting mains, laid on a slightly ascending grade from the extreme wells in both directions to an intermediate deep brick well at the pumping station, where they turn vertically downward to near the bottom, thus forming siphons similar in all respects to those previously described, and operated in the same manner. To keep the trenches for the main and lateral pipes dry during construction, the ground-water level was lowered to sufficient depth by rapid pumping from 4 wells at a time by means of the aforesaid electric pumps. The collecting mains are of ordinary bell and spigot pipe, the joints being made tight with solid rings of round india-rubber instead of lead. These rings are about one and one-half times as thick as the space between the bell and spigot, and of the same diameter as the pipe itself. By slipping such a ring over the spigot end of a pipe and then rolling or pressing it into place in the bell, it becomes flattened, and an excellent flexible joint is easily made which is said to be air-tight for a vacuum, and to withstand an internal pressure of at least 60 pounds per square inch without leaking. It is also claimed by the German engineers that these joints can ordinarily be made in two minutes each, and under water if necessary; that they do not deteriorate with time, and that they can be quickly taken apart and readjusted as often as may be desired.

At Cassel, the plant consists of 20 wells driven at intervals of 67 to 73 feet along a line which is 130 to 160 feet from the bank of the river Fulda. The borings penetrate successive layers of loam, clay, gravel, sand and sandstone, the four upper ones aggregating about 20 feet in thickness. Each well is formed by sinking a 12-inch copper casing to the rock, the lower 10 feet of the pipe which is in the sand and gravel being perforated with numerous slits one inch long by one-sixteenth inch wide, and then drilling for some distance into the sandstone; a 6-inch copper tube provided with a foot-valve and suction-head is then placed inside, and the space between this tube and the casing is filled with clean gravel. The suction-heads were then connected by branch pipes to the collecting main, and every well was finished by enclosing its top in a concrete manhole, 6 feet in diameter and 6.5 feet high, projecting far enough above the surface of the ground to exclude flood water when the river overflows its banks.

EFFECT OF RAINFALL.

The influence of the rainfall in raising the level of the ground-water is dependent on a variety of conditions, such as the amount of the precipitation, the season of the year, the character of the surface soil and vegetation over the outcrop of the water-bearing stratum, the distance of such outcrop from the site of the wells, the porosity and slope of the stratum, etc. Comparatively shallow wells in a flat bed of sand or gravel whose upper surface is exposed are quickly affected by a heavy rain, while in less permeable soil an appreciable rise may not be noticed for several days afterward. Thus, in the gravelly soil at Plainfield, N. J., it was observed that a rainfall must be exceptionally heavy to produce a marked elevation of the water surface within 24 hours, while ordinary rains are rarely felt within 30 hours. The wells which are drilled into the red sandstone of northern New Jersey, in localities where it is covered by a layer of surface soil about 20 feet thick, do not begin to show an increased yield in dry seasons until 3 or 4 days after a severe rainstorm. A 9-inch well bored to a depth of 125 feet in the chalk at Kenley, England, is affected about one week after a heavy rain.

An interesting experiment was made a few years ago at a deep well in the chalk at Caterham, England, wherein the water stood at a level 300 feet below the surface. The chalk strata were here covered by a layer of clayey soil about 20 feet in depth, which became deeply fissured by shrinkage cracks during a period of summer drought. To ascertain whether impure surface water could reach the well through these cracks, a solution of lithia was poured into them at

various points in the vicinity, after which the well-water was tested at regular intervals with the result that the lithia was found 80 days later. A number of valuable observations can also be deduced from the rainfall and pumping records of the deep excavation for the new Croton river dam, all tending to show that a considerable time elapsed between the precipitation and a noticeable increment of the flow into the pit, and amounting in some cases to as much as two months. It may be added that from such data as the foregoing, attempts have been made to determine the rate of percolation, both vertically and horizontally, through permeable strata; but in view of the numerous uncertainties attending observations of this kind, it is obvious that many additional records are required before satisfactory conclusions can be reached.

SANITARY PROTECTION OF GROUND WATERS.

In a former chapter wherein the quality of the water obtained from driven wells was discussed, it was pointed out that in populous districts the upper layer of the ground is generally more or less contaminated by organic matter, some of which is carried down to a certain depth, in one form or another, by the rainfall that percolates into the subsoil; furthermore, that the water of shallow wells in a permeable surface stratum is usually defiled by the leachings from barnyards, cesspools and sewers; and that when such leachings or direct discharges find their way into seams, crevices or fissures in rocky strata, which are either bare or only thinly covered with earth, the chances of their purification in the course of the underground flow are very remote. The limit of such transportation of dangerous substances and organisms is not definitely known, but it is manifestly governed in large degree by the nature and porosity of the soil, the season of the year, the depth of the rainfall, and the character, intensity and continuance of the pollution. Under favorable conditions, most of the organic impurities carried in suspension are arrested in the interstices of the subsoil somewhere in the course of the downward and lateral movement of the water, and are subsequently transformed by chemical and biological agencies, along with the soluble organic matter, into harmless ultimate products.

These natural purifying operations, however, require not only a sufficient thickness of suitable soil to effect the mechanical filtration, but also a considerable period of time for the accomplishment of the subsequent transformation; and as the latter process is largely performed by certain minute living organisms which are usually found only within a few feet of the surface, it follows that satisfactory results cannot be expected if the foul matter is discharged into the subsoil at a considerable depth and in close proximity to the site of the wells. For this reason the wells should always be sunk as far as possible from deep cesspools or sewers, and particular care in this respect is necessary when they are formed by borings into seamy or fissured rocky strata overlaid by polluted soil. Numerous instances of contamination may be cited where crude sewage escapes from badly constructed sewers in such rock formations, and is carried for long distances laterally through small subterranean crevices into deep wells; also where sewage which was discharged upon the surface in localities having sink or swallow holes, or wherein the clayey soil becomes deeply cracked during a period of drought, was found a few hours afterward in wells presumed to be at a safe distance. It is therefore a matter of the utmost importance, in selecting a site for a system of driven wells, to be sure that the location is free from dangers of this kind, and that it will probably remain so in the future.

In view of all these considerations, it is evident that there should be around every well a certain area of land which can always be kept free from pollution. The magnitude of this area depends on the depth of the well and the character of the subsoil, but in any event it is a wise precaution to secure the control of the surface for a width of at least 200 feet on each side of a row of wells. A similar control of the outcrop of the water-bearing stratum above the location of the wells should also be acquired, if possible, otherwise the time may come when its contamination will lead to serious consequences. The ground in these localities should either remain uncultivated or be planted only with grass; and in order to secure as much depth of filtration and time for percolation as practicable, the water should be taken from near the bottom of the permeable stratum.

In a recent discussion of the subject by Dr. John C. Thresh before the English Society of Engineers,* it was claimed that the protective area around a well should be at least as large as the base of the "cone of

depression" caused by the pumping operations, and to obtain some idea of its magnitude in the case of a sandy subsoil, the following method of computation was suggested. Let it be assumed that the well in such a subsoil yields 45,000 gallons per day and that the resulting depth of the conical depression in the normal water-table is 9 feet; also that with this depression, equilibrium between the subterranean flow to the well and the said draft therefrom is permanently maintained, and that the quantity of water originally contained in the conical volume of sand above the depressed water surface is equal to the stated daily draft; furthermore, that every cubic foot of said volume of sand will yield 1.5 gallons of water, and that the surface of said conical depression is formed by straight instead of curved lines radiating from the apex or well. It will then be found that the area of the circular base of the given cone is 10,000 square feet, corresponding to a diameter of 113 feet. The sides of the depression are, however, not straight, but more or less sharply curved at the apex, thereby greatly reducing the height of a true cone having the same volume, which is here 30,000 cubic feet in accordance with the above assumptions. From a number of experiments, it may be considered that the height of the equivalent true cone is only about four-tenths of the given depression at the well, whence its base will have an area of 25,000 square feet, which corresponds to a diameter of about 180 feet. Furthermore, due allowance must be made for irregularities in the composition of the subsoil, whereby this diameter can easily become much larger; and in this manner the conclusion is reached that the protective area around each well should have a radius of from 200 to 300 feet, which is to be increased in proportion as the normal water-table is nearer to the surface of the ground.

The assumptions on which the foregoing method of computation is based are open to many criticisms, and the argument has been given merely to indicate how a solution of this important question has been attempted. It is also worthy of note that in the subsequent discussion of Dr. Thresh's paper, no better way of fixing a proper limit for the protective area was brought out. A more rational method, however, is to take into account the maximum rate of the underground flow and the time necessary for completing the transformation of organic matter into harmless products, under reasonable conditions adapted to the particular locality; and such a method will doubtless be established after more has been learned of the natural purification processes which take place in subsoils of different quality and depth. Meanwhile, little further can be said on the subject except that, in the absence of such knowledge, it will be prudent to err on the safe side by locating wells in accordance with the general principles above set forth, and securing the site against pollution by the acquisition or control of a generous quantity of land.

A few words may also be added in relation to the storage of ground water after being taken from the subsoil. The general absence of obnoxious micro-organisms in such waters when first brought to the surface, is commonly attributed to the efficiency of its subterranean filtration; but the fact is that the spores of many such organisms are small enough to pass easily through the interstices of permeable soils, and thus be carried along by the water into the well. So long as these spores remain in the darkness of the underground and in water which contains little or no air, they generally remain undeveloped and unnoticed; but soon after exposure to the sunlight and atmosphere in open reservoirs, they begin to grow rapidly and often impart to the water a disagreeable taste or odor. All deep-seated waters should therefore be used at once, or else be stored in perfectly dark basins. This measure is, however, not always sufficient to prevent such water from deteriorating, as some organisms like the microscopic fungi and certain protozoa prefer darkness to light.

Storage in the dark also appears to be necessary for mixtures of surface and ground waters. An instructive instance of the deterioration of such a mixture in an open basin is afforded by a recent experience with the water supply of Brooklyn, where well water drawn from depths of 25 to 200 feet becomes mixed in the aqueduct with surface water taken from various open streams and ponds, and is finally delivered into the Ridgewood reservoir. For many years while the proportion of surface water greatly predominated, the water in this reservoir remained in excellent condition; but after the amount of ground water reached 40 per cent. of the total supply, and a deposit of organic matter had gradually

*Described by Mr. Allen Hazen, C. E., in "Journal N. E. Water Works Assoc.," Vol. 3, pp. 112-4, 1896.

†"Engineering Record," June 4, 1898; Vol. 38, p. 10.

*Trans. Society of Engineers, London, 1898, pp. 47-96.

accumulated on the bottom, the conditions became favorable for the development of certain minute organisms. One of these varieties, the diatom *Asterionella*, thereupon multiplied to such extent in the reservoir as to cause much annoyance to the people who used the water for drinking purposes.

(To be concluded in September.)

Streets and Lighting.

Would Change San Francisco's Streets.

Rectilinear streets do not conform to the topography of the peninsula on which San Francisco is built, and Commissioner Marsden Manson of the Board of Public Works would see that geometrical system abolished. He holds that streets and roads should sweep around the bases of the hills and climb the steeply by easy gradients. The "line of beauty" should take the place of the stiff streets stretching in straight, parallel lines up and over heights inaccessible to anything but a goat or a cable car.

"The present system is all wrong," says Commissioner Manson. "I would have it abolished as soon as possible, and would start in with Russian hill, on the slopes of which, now fit only for goat pastures, there could be developed some of the most magnificent building sites in the city. Athens was not laid out with a square and compass; neither was Rome. To change would mean much work, and would take, perhaps, 100 years; but London is still undergoing changes of this nature. We can at least make a beginning."

Pittsburg's Specifications for Street Improvements.

The specifications recently issued by Chief Engineer Brunner of the Department of Public Works of Pittsburg, Pa., are rather novel, since they cover nearly all kinds of municipal work in one set, including all of the following: Grading, broken stone drains, materials for mortar and concrete, mortar, concrete, concrete foundations, masonry of three classes, manholes and catch-basins, sandstone curb, granite curb, setting curb, stone crossings, blockstone pavements of four classes, sheet asphalt pavements, block asphalt pavements, Telford macadam pavements, portland cement sidewalks, telford macadam sidewalks, cinder sidewalks, plank walks and steps, and repairs of all kinds.

The quarry-faced sandstone curb ought to give a street a very good appearance, besides preventing the face from flaking. The following is the specification for this curb:

"The front of curb shall be quarry-faced with one-inch chisel draft cut along the upper edge and along the joints at right angles to the top.

"Vertical scores or grooves, spaced two inches between centers, shall be cut in the quarry-face with a point, and shall extend twelve inches from the top of the curb. They shall be cut straight and true and the bottom of them shall be in the plane of the chisel drafts. * * *

The quarry-face shall not in any place project more than three-quarters of an inch beyond the plane of the chisel drafts, nor shall it in any case recede back of said plane."

The specifications for masonry, blockstone pavements, telford pavements and for all kinds of sidewalks, are very full and explicit.

A New Idea in Road Building.

In the August, 1899, issue of "City Government," was given a description of a novel method of road building. Instead of building the road with a crown or convex surface, it was to be built with a concave service. The proposition was made to the trustees of the village of Dansville, N. Y., by Martin L. Davis, but it was not adopted. "A prophet is not without honor save in his own country," and so it proved in this case, for the neighboring village of Geneseo, the county seat of Livingston county, has adopted the idea.

The work of macadamizing the southern portion of Main street in Geneseo is now fast approaching completion. When finished the village will have a highway which will present novel features, besides furnishing scientists and engineers with a fruitful topic of debate and illustration.

The construction of the new stretch of road is upon plans which depart from the ordinary methods of road structure in a number of particulars. The most important of these is the situation of the draining ditch, which is so placed as to run through the direct center of the street. A four foot drain filled in with tile occupies this position, and the foundations on either side slope to the central depression formed by it. The adjacent surfaces have been filled in with a dressing of slag, and this has been macadamized in accordance with usual principles.

The plan follows the propositions for road structure that were advocated by Martin L. Davis, of Dansville, for nearly a score of years past. Mr. Davis had made an exhaustive study of highway building, and at the time of his death last year had substantially succeeded in obtaining an adoption of his methods for constructing the proposed new road system in Dansville. Major William A. Wadsworth, who is putting in the new macadam road in Geneseo is a firm believer in the plan advanced by the Dansville expert, and a practical illustration of this departure from known and tried methods will be afforded by the block of road now building at Geneseo.

The advantages of this mode of structure are obvious. There will be no lateral ditches to offend pedestrians and no loss of roadway by reason of the usual extended side drains. The saving in expense will be considerable, and the necessity of repair in a large degree done away with.

This latest addition to Geneseo roads gives the village a main street macadamized throughout its whole length and a general condition of highways which is surpassed in none of the other Western New York villages. The new road will be also an object of interest to experts, and an ultimate demonstration of its utility is sure to be followed by a widespread adoption of the system.

The Columbus (O.) fire department has no salvage corps and Chief Lauer is endeavoring to arouse sufficient interest to secure one.

Patrolmen Frank Sheehan and John Mosher, of the Chicago police force, who are charged with having held up and robbed Hugh McDougall of \$160, were discharged from the force. This followed their indictment on a charge of highway robbery. The officers are said to have committed the deed while in full uniform.

Straw Used to Improve Sand Roads.

"Strawing" of sand roads has been an experiment with road builders in Denton County, Texas, this year, and judging from a stretch of what used to be very bad road north of Denton, the experiment is an unqualified success. The piece of road in question lies between here and the Pilot Point crossing on Clear Creek and up to this year was almost impassable for a heavy loaded wagon, the sand being several inches deep. Part of the road was clayed and another part "strawed," the latter being done at about one-half the cost of the former. Both pieces of road are in fine shape now, that part "strawed" in wet weather being superior to that clayed. Commissioner John F. Morgan of Aubrey, in whose district the road is, says that several other similar experiments have been made near Aubrey. The total cost of "strawing" is about \$20 a mile, he says, about half the cost of clay, as stated above, and a renewal of the straw in the fall will last as long as the clay.

A Park With Novel Features.

One of the most unique parks, when completed, in Philadelphia will be the Starr Garden Park. Situated, as it is, in the congested district around Lombard and Sixth streets, plans have been prepared making it a combination of both playground and park.

One of the characteristics of the new park will be the arrangement of trees so that one inside the park will appear to be surrounded by a thicket, which screens the unattractive street surroundings from view. To complete this effect each of the four entrances from the several street intersections curve around beds of shrubbery, thus effectually shutting out the surroundings.

In the very centre of the park will be erected an unusual style of pavilion. Under an ample roof is a large space reserved for a huge sand pile for the delight of little folks. Surrounding this will be a raised platform, which will screen the unsightly sand pile from view, and at the same time afford a resting-place for the mothers, who can watch their children at play. Inclosing all will be a rustic fence.

To the west of the pavilion it is proposed to provide a large shallow pool of running water, where the little folks can paddle around to their hearts' content. This feature has been introduced in playgrounds in other cities, and has proven to be the most popular of all amusement features for the children.

On the other side of the pavilion it is proposed to erect a large drinking fountain, supplied with cold water from an ice chamber below. No feature could be secured that is more needed than this, and it would be the greatest boon to the thickly populated section of the city, where, suffering is general in hot weather.

Healdsburg's Light and Water System.

The new water and light system of Healdsburg, Cal., has now been in operation for several months and an idea can now be had of its operations.

President Pyne of the Board of Trustees recently submitted a report of operations of the system covering the month of May. His report is as follows:

"I think it is right to make to you and to the taxpayers of the City of Healdsburg a statement of what the water and light plant is doing. I feel that it is my duty to do this, as I promised the voters

of the city at the time of the bond election that if they would vote the bonds and the plant was put in, it would pay the expense. But in the statement then made the cost of what the city would receive in lights and water was figured as part of the income of the plant, and it is right to include this, as it would not be right to have those of our citizens who are using the lights and water pay that which the city receives, and which is for the benefit of all. This I think should be paid by a tax on all, as all receive the benefit of the street lights, City Hall lights, the Plaza, and the fire protection, and water for sprinkling the streets; so in this statement I have included all of these things as part of the income of the plant. I include two statements: One of the expense—what the city paid for lights and water to the old light and water companies for much poorer service than the present, when the lights went out at midnight. We then had 13 fire hydrants; we now have 43, and can reach any house in town, and you all know that before there was much of the town we could not reach with water.

"The other statement is what the service we now receive would be worth and what we would have to pay for it if we bought it from a private company.

"In the first statement I have taken the figures from the city books of just what we did pay, as far as I could. In regard to the water for streets, as we now put on with one man as many or more loads than we did before with two, I think it fair to charge the time of one man and team to the cost of pumping the water, which at \$2.50 per day would be \$75 per month.

INCOME.

Sale of water and lights, May, 1900.	\$672 93
Street lights as paid old company..	63 00
Lights in City Hall, Gas Company.	25 55
Fire hydrants, as paid old company	13 00
Water for Plaza.....	20 00
Water for streets.....	75 00
Water for City Hall.....	2 50

Total\$871 98

EXPENSE.

Bonds and interest.....	\$495 83
Salary superintendent	120 00
Salaries for two station men.....	100 00
Salary pipe inspector.....	10 00
Salary, line man, \$1 per day.....	26 00
Keep of horse.....	16 00
Water janitor.....	15 00
Repairs and incidentals.....	20 00
Salary collector	35 00

Total\$837 83

Balance of profit..... 34 15

STATEMENT No. 2.

Sale of water and light, May, 1900.	\$672 93
31 street lights all night at \$7 per light	217 00
60 City Hall lights.....	20 00
43 fire hydrants at \$1 each.....	43 00
Water for Plaza at 1-4c per square yard	15 00
Water for streets.....	72 00
Water for City Hall.....	2 50

Total\$1,042 50

Expenses per statement No. 1.... 837 83

Balance profit \$236 00

"I congratulate you on the success of this plant, as I think that no plant can make a better showing for the short time it has been in operation, and the plant has not yet reached its full capacity.

"The members will notice that I have not included in the expense account anything for a sinking fund to renew the

plant as it shall give out. I think this very important and something this Board should provide for at once. No plant can last forever, and the time will come when some large repairs will have to be made. If a fund is not provided for this purpose the city will have no money to do the work, and unlike a private corporation, you cannot borrow money when the time comes to use it. In my judgment you should provide a fund by setting aside not less than \$160 a month for this purpose, and we will then be in a position to make repairs when the time comes."—"California Municipalities."

Detroit's Street Lighting Plant.

The annual report of Detroit's (Mich.) lighting commission for the fiscal year ending June 30, 1900, has just been submitted to the Board by Secretary Guerin. It received official indorsement and President Ingram was empowered to write a preface, though Commissioner Simons expressed the opinion that the figures presented should be allowed to speak for themselves. The only improvement suggested was that the moneys received by the Board during the year for rental of poles, conduits, etc., should be credited in the maintenance fund, as it would help reduce the cost of operating per arc light by about \$1 per lamp.

During the year the total receipts of the Board from taxes and other sources was \$150,505.59, and the expenditures amounted to \$124,989.20. The balance, together with the cash balances carried over from last year, made the cash available on hand at the end of the year \$56,556.39. For investments there was expended \$14,284.53, bringing the net investment of the commission up to \$720,620.34.

The total amount expended for the operation of the plant was \$90,087.73, of which \$54,897.14 was for labor, against \$96,665.03 for the fiscal year 1899, a net saving of \$6,577.30. In kilowatt hours the output for the year was 3,789,050, of which 3,327,453 kilowatts were for arc lighting and the balance for incandescent lighting. The report shows that the cost per kilowatt hour of output for the year was \$0.02377. Multiplying the latter by the arc output the result gives the cost of arc service (street lighting only) as \$79,112.87.

The average number of arc lights burned during the year was 1,963, making the cost per arc light \$40.30, not including depreciation, interest, etc. Last year the cash cost per arc light was \$46.46. In all thirty-nine additional street lights were installed during the year.

The inspection department more than pays for itself in fees, and there is now a balance of about \$500 on hand.

Scheme to Extract Water from Garbage

Health Officer Delano, of Grand Rapids, Mich., has hit upon a scheme for the disposal of all sorts of unsanitary refuse that the garbage burner has been unable to handle and is confident that in it is the solution of problems that the Board has been trying to solve for two years. The garbage burner failed to burn all of the refuse, because some of it was more than 80 per cent. water and the plan of carting the matter to nearby farms was resorted to. The suit which grew out of the attempt to deposit night soil west of the city and the scarcity of available places made some new course imperative.

It is proposed to build a double tank between the two openings of the present garbage burner, the inner tank to receive all of the night soil from the barrels as

it is collected. The water in the soil will filter into the outside tank and will flow off into the sewer connections. Then the dry refuse in the inner tank will fall through a shoot into the furnaces of the burner and will be consumed. The scheme has been pronounced practical. The cost, Dr. Delano says, will not exceed \$350. The capacity will be 50 barrels a day.

Jacksonville's First Year of Municipal Lighting.

(Copyright, 1900, by William S. Crandall.)

With the end of May, 1900, the control of the Jacksonville (Fla.) electric plant had been with the Board of Bond Trustees for one year. The same date practically completed the first year also of the operation of the enlarged plant, and the deductions to be gained from an inspection of the cost of operation and of income will have a pertinent interest for all who favor the municipal ownership of public utilities. It was predicted after several months of operation that the plant would produce an income sufficient to meet all fixed charges and leave a handsome profit, which might be applied to the payment of interest on outstanding bonds and to provide a sinking fund, with which the bonds might ultimately be retired. Below are given the figures of the twelve months' operation under the management of the Bond Trustees, from which the intelligent student of the problem may make his own deductions as to the wisdom of municipal ownership, as illustrated by the particular utility in question:

Months.	Commercial Receipts.	Disbursements.
June	\$3,687 78	\$2,967 95
July	3,738 39	3,793 01
August	4,576 48	2,758 14
September	3,695 61	3,251 92
October	3,635 08	3,908 02
November	4,055 70	4,443 30
December	5,277 46	4,535 62
January	4,670 30	5,748 25
February	5,060 15	4,969 85
March	6,213 28	3,660 84
April	4,651 34	4,373 83
May	4,957 67	3,674 59
May, 1899, pay roll..	1,886 75
Totals	\$54,219 24	\$49,972 07

The total income from the plant is derived from two sources: first, from commercial lighting, according to the table given above; and from city or public lighting, for the payment of which a special tax is levied and is paid through the Board of Public Works to the Bond Trustees, to be applied to the payment of interest on bonds. The budget of 1899 provided for an appropriation of \$20,000 for public lighting, and of this amount the Board of Public Works turned over to the Bond Trustees for the payment of the May installment of interest the sum of \$9,166.67, instead of the entire amount of \$20,000, as provided by ordinance. This makes the actual income from the plant within the twelve months in question, as follows:

Commercial lighting	\$54,219 24
Public lighting	9,166 67

Total\$63,385 91

The disposition of these funds is shown in the following statement:

Ordinary expenses	\$49,972 07
Interest	9,166 67
Cash balance	4,247 17

Total\$63,385 91

In explanation of the expense account as shown in the table above, it is to be said that the item of \$1,886.75, for the

May payroll of 1899, was an inheritance from the previous management of the plant, which was necessarily assumed by the Bond Trustees, although it was not properly chargeable to the administration of the plant by the Bond Trustees.

The expenditures and debts of the year are more explicitly itemized in the following table:

Superintendence and office expenses	\$4,409 69
Extensions and improvements	6,734 80
Repairs and construction	12,513 96
Expenses at power station	23,835 20
Miscellaneous	554 32
Refunded	37 35
Interest	9,166 67
Payroll for May, 1899	1,886 75
Cash on hand	4,247 17

Total \$63,385 91

The items of extension and improvements are given as follows:

Copper wire	\$1,396 90
Transformers	1,318 75
Meters	3,289 76
Building shop	202 65
Instruments	132 90
Lamp hangers	128 20
Boiler foundations	76 64
Boiler connections	188 91

Total \$6,734 80

Items of repairs and maintenance are the following:

Salaries	\$6,500 44
Carbons	1,569 13
Series lamps	607 90
Poles	521 50
Extra labor, supplies, repairs and feed	3,314 99

Total \$12,513 96

Items of expense at power station:

Salaries	\$7,970 21
Fuel	12,476 17
Repairs to building	695 69
Supplies and repairs	2,693 13

Total \$23,835 20

From the figures that have been given above the actual income and expenditures of the twelve months may be seen, and the cash balance represented was the deposit in bank to the credit of the plant on May 31, 1900. On the basis of these figures, some deductions may be drawn as to the financial operation of the plant, under circumstances that would make demand for several items of extraordinary expenditure, such as are shown in the statement above. Under the present financial condition of the city there are outstanding municipal bonds, drawing interest at the rate of 5 per cent. per annum, payable semi-annually. Instead of levying a direct tax on the real and personal property of the city for the payment of this interest, there is levied a tax for public lighting, which is applied to the payment of this interest, and from the income from the city electric plant and from the city waterworks is secured a fund to be applied in the payment of this interest.

In the estimate of expenses for the current year, the item for public lighting was placed at \$20,000 by the final action of the City Council, although the sum of \$24,000 had been asked for this purpose. The actual cost of lighting the city at commercial rates is but little less than \$26,000. The appropriation being so much less than was demanded, has prevented the extension of the public lighting system, and the repeated requests of the Board of Public Works for the location of additional street lights, which are needed, have necessarily been denied, excepting in such places as public necessity

has imperatively demanded the extension. More than this, the abbreviated appropriation allowed by the City Council is insufficient to meet the expenses of those lights that had been located before the preparation of the budget. The excess of this expense must, therefore, be an expense to be met by future appropriation, to be carried as a claim against the city by the Bond Trustees, or it must be deducted from the profits of the plant, and the deficiency in interest must be supplied from other sources.

Although the provisions of the budget ordinance require that the sum due for public lighting is to be paid at certain periods, the Board of Public Works declined to meet this requirement as to time, claiming that the city should not be required to pay in advance of the services rendered any more than are other customers of the city plant. This Board made the appropriation for the purpose one-third of the sum required, or \$6,666.67, and after consultation with a committee from the Bond Trustees agreed and did advance still further the sum of \$2,500.

The investment in the plant and extensions is practically \$150,000, on which sum 5 per cent. per annum would be \$7,500. The question of depreciation of rapid moving machinery, such as electrical appliances, is an open one among engineers, but none, so far as is known, places this item greater than 10 per cent. per annum. Allowing this on the investment would mean \$15,000 annually. It is conceded that there will exist a continued demand for the enlargement of the plant with the continued growth of the city, for which the estimate has been made of a regular annual expenditure of \$6,000, which amount, it is asserted, will cover the average of such enlargement and extension. Taking, then, these figures, together with those given as the cash transactions for the past twelve months, the value of the electric plant as a municipal investment would be shown by the following statement:

INCOME.

Commercial lighting	\$54,219.24
Public lighting	26,000.00

Total \$80,219.24

DISBURSEMENTS.

Operating expenses	\$41,350.52
Interest	7,500.00
Extensions	6,000.00
Depreciation	15,000.00
Balance	10,369.72

Total \$80,219 24

In explanation of the item of operating expenses, as given above, it is to be said that from the expenses of the last twelve months there are to be deducted two items, the payroll for May, 1899, amounting to \$1,886.75, and the extension and improvement of the plant, amounting to \$6,734.80, for which allowance is made in another item. The total of these amounts deducted from the total expenditures of the last twelve months leaves \$41,350.52 as the actual operating expenses, as stated.

The income from the plant, according to these estimates, would, therefore, be \$10,368.72, or \$864.06 per month, 5.7 per cent., under ordinary expenses. As has been stated above, the present financial plans of the city provide that the income from the electric plant and from the waterworks are applied to the payment of interest on outstanding bonds. While it is the belief that the sum of \$15,000 should be religiously set aside from the income of the plant for the item of depreciation and to be available for this purpose alone, as would be done in the

management of the plant under private ownership, it is required under municipal ownership in this city that this sum shall be devoted to the payment of interest on bonds, so that when the necessity shall arise for future replacing machinery and renewing of worn appliances, the sum that has been earned for this purpose will be wanting, although it has been properly earned, and it will become necessary to provide by special appropriation to meet the necessity.

McKeesport's Garbage Incineration.

For six years the city of McKeesport, Pa., has been disposing of its garbage—including all wet waste, dead animals, etc.—by means of an incinerating plant. The work has been of a most satisfactory type, and, while the plant is centrally located, yet there has not been a single complaint by the people living in the vicinity. The process is so perfected that it is odorless.

The original cost of the plant, including the site, was \$8,059.09. It has a daily capacity of 50 tons.

During the last fiscal year 824 wagon loads of garbage, 9,360 barrels of refuse, 13 cans of fish, 547 barrels of night soil, and 311 dead animals were incinerated.

The expense of operating the plant for the year was as follows:

For labor, one man	\$651.23
For fuel, (slack coal)	195.00
For grate bars and repairs	221.04
For furnace supplies	9.40
For hauling ashes from furnace	51.90

Total \$1,128.57

McKeesport has a population of about 34,000 which is an increase of one-third during the last decade.

The waste is collected and hauled to the incinerator by licensed scavengers under the supervision of the Health Department. The haulers collect their pay from the householders and in turn are obliged to pay a certain sum for the incineration of refuse hauled. The total cost of running the Health Department last year, including the expense of running the incinerator, amounted to \$3,038.56.

Sewage Disposal for Vineland.

Plans have been prepared for a sewage disposal plant for Vineland, New Jersey, consisting of sand filtration, which have been recently approved by the State Sewerage Commission of New Jersey after an exhaustive examination of the ground and also a critical examination of the plans.

This disposal system is expected to render the sewage of Vineland absolutely pure, as the stream into which the effluent drains, forms a feeder to the lake from which the water supply of Millville, N. J., six miles below, is drawn.

The work of sewerage construction at Vineland has been let and the contract for these disposal beds will probably be entered into within the next three weeks.

The City of Vineland has recently purchased the existing water plant and the city has voted \$140,000 for the purchase of the same and improvements thereto. They will also construct their own electric lighting plant, having appropriated \$25,000 for this work in addition to the above amount.

The plans for these systems were prepared by Mr. Alexander Potter, C. E., Consulting Engineer, of New York City, and contemplate the combination of water works, electric lighting and sewage pumping in one building, and promises to be one of the most unique and economical constructions anywhere in this country.

MUNICIPAL ASSOCIATIONS.

Problem of Cleaner Dallas League.

Captain D. E. Grove is the energetic president of the Cleaner Dallas (Texas) League, who is enthusiastic in his efforts to bring about a more sanitary condition of his city. The League holds weekly meetings in the Commercial Club rooms. And they are real, live meetings, too, a result largely due to the activity of the president.

At a recent meeting of the League, Mr. Grove described the situation in Dallas, as follows:

"The more one studies the problem of a cleaner city the more does he realize the thanklessness as well as endlessness of the task before him, but with these comes the keener appreciation of the necessity of the work, as well as consciousness that it is now bearing fruit and in years to come will show results which will repay a thousandfold.

"As to its thanklessness and necessity, a very short stroll only is necessary to demonstrate them. In ten minutes today I saw gutters in three places filled with the waste grass and weeds from yards. One place where the waste cornshucks and trash from yesterday's dinner were carefully deposited on the outside of the pavement and in the gutter. One, where a colored janitor had swept out the office trash and dirt on the pavement and was then sweeping these off the pavement into the street. This was in plain sight of police headquarters and not 400 feet distant.

"It was only within the last few days that I was advised by attorneys that existing ordinances on our statute books for years prohibited the deposit of yard waste trash and grass in the streets, simply because I thought if such laws existed they would be enforced. If there were no other reasons than an economical maintenance of drainage (any one can see where the waste is left in our gutters there is no drainage proper) the laws should be enforced, though this is not said in a spirit of criticism, but of illustration. If, where these piles of waste and trash are now rotting in the sun as well as accumulating the wash and filth that would otherwise be carried off by our summer rains, there existed some violation of the sense of right and law in our police, the entire force could be depended on to be there day and night in its correction until this was done. But with our present public sentiment these things are accepted as a portion of the drawbacks. It is just as necessary to awaken public sentiment upon this point as to appeal to our commissioners to have the police enforce the law.

"Then take the porter, sweeping everything into the gutter. That porter would no more think of committing a felony in broad daylight, within plain view of police headquarters, than he would think of suiciding, but because there is no public sentiment against it he violates the law without giving it any more thought than the idlers have heretofore given the besmearing of the halls and steps of our court house with their waste tobacco.

"There are two sides of this problem of cleanliness which strikes one very forcibly when making personal appeals for a cleaner city. Yesterday, not in self-justification, but to illustrate 'there were others,' a working man said: 'I know that

ain't nice, but I thought to save a quarter. But if you will go about some of these fine houses you will find it worse and more of it. I drove one of the city wagons last year and from one of the largest back yards of one of the finest dwellings in the city, giving name and location, I hauled more dirty waste and filth than there is room for in the back yards of all the laboring men in Dallas together.' So that while we must look out for and help the man keep clean who appreciates, but is not able to do what he would like, we must create a public sentiment of actual cleanliness out of sight as well as in, among those who can afford and should have it.

"The first thing I recommend for the united efforts of the entire league is to arrange for the removal in some practical, economical manner the family waste and slops from our dwellings. The city authorities acknowledge their financial inability to do this. My idea is that by a concert of action as to a contract those of us who now pay from 50 cents to \$1 a month during the summer for this service can by joint action let a contract to one party for an entire ward and secure the removal of garbage from every house in the ward for, say August, September and October, without additional cost to ourselves. I would therefore suggest that each ward vice president take this problem up in the most practical business-like way to secure results. It will only require a little hard work. When the sentiment is created the results will follow in a cleaner and healthier city, as well as cleaner and healthier public sentiment afterwards."

Program of National Municipal League.

The program of the Annual Convention of the National Municipal League to be held in Milwaukee in September gives promise of a series of most interesting sessions. There is a variety of papers to be read by prominent members of the League, which will, of course, lead to general discussion and the dissemination of new thoughts and ideas that cannot but prove of advantage to all those who may attend the convention.

The program of the meeting, which will cover a period of three days, includes the following: The Essential Elements in Good City Government, by Charles J. Bonaparte, of Baltimore; The Representation of Different City Interests in the Council, by Hon. William Dudley Foulke, of Richmond, Indiana; The Influence of Public Service Companies on City Government, by Rev. Washington Gladde, D. D., of Columbus, Ohio, who was recently elected an Alderman in that city; The Government of the City of Glasgow, by Rev. Albert Lazenby, recently of the city of Glasgow; A Year's Municipal Development, by Clinton Rogers Woodruff, of Philadelphia; The Model Charter, a Practical Experiment of Long-tried Principles, not an Innovation; The Model Charter and Wisconsin Cities, by Honorable Joshua Stark, President of the Wisconsin Bar Association; Does the Model Charter Confer Dangerous Powers on the Mayor, by Charles Richardson, of Philadelphia; The Model Charter and Small Cities, by Prof. S. E. Sparling, of the University of Wisconsin, who is also an Alderman of Madison; The

Growth of the Municipal Reform Idea in the West, by Dr. Amos P. Wilder, of Madison, Wisconsin. Other questions, including a discussion of the proper extent of governmental action in American municipalities, will be discussed by eminent reformers and students of municipal government. It is expected that Controller Coler, of New York, will be among the speakers, if his engagements will permit.

Pennsylvania's Municipal League.

The legislative committee of the Pennsylvania Municipal League, which is an association of the third class cities of the State, recently met at Harrisburg, to consider measures to be presented to the next legislature, modifying and changing the laws governing cities of the third class. Eight cities were represented by David P. Klinedinst, York; A. A. Cochran, Chester; William G. Crosby, Erie; James A. Gardner, Newcastle; D. S. Seitz, Harrisburg; E. P. Schoonmaker, Bradford, and George B. Bowers, Altoona.

Among the measures discussed was that Mayors of third class cities may succeed themselves and the appointment of policemen be taken out of the hands of politicians and that when a good man secures the position of policeman he shall remain on the force until disqualified by age or conduct unbecoming an officer.

Municipal League of "Has Beens."

The term "has been," as applied to an individual, is commonly one of derision, but it is not so used in this connection, but quite the contrary.

Every municipality has a greater or less number of ex-Mayors, Aldermen and other ex-city officials, whose valuable experience is allowed to go to waste. It has remained for a down east Yankee from the "nutmeg" State to suggest a feasible way of utilizing the experience of the "has been." The honor belongs to City Clerk Norris, of New Haven (Conn.), who has suggested that a local association be formed, whose membership shall be confined to all those who have held office in the city administration at any time.

The work of the association, if one is formed, will be to consult on matters of interest and importance to the municipality, pretty much after the manner of the Chamber of Commerce. The proposition has met with the approval of the Council and the City Clerk has been authorized to call a meeting in September to effect such an organization.

MISCELLANEOUS ADS.

E. F. MOORE,
General Paving Contractor,
Burlington, Vt.

ELISHA GREGORY,
Contractor for Drilling Artesian Wells,
60-64 Liberty St., New York.

WANTED.

The W. J. Clark Co., Salem, Ohio, will buy one large and one medium size sheet metal drawing press—second hand will do if modern and cheap.

A GAS FITTER AND PLUMBER, thoroughly competent and educated, wishes to locate in a place of five to ten thousand population and open business alone or in employ of others where good work is desired.

Address Plumber, care this office.

Parks.

The Statue in the Park.*

By William Ordway Partridge.

We assume that the landscape gardener has laid out his park and has availed himself of all the possibilities afforded by the natural conformation of the ground. The architect has followed him, and has placed his pavilions, recreation houses, etc., where they are most needed, adhering to the truth that the beautiful finds its origin in the useful. Now comes the turn of the sculptor, whose art in a sense is the handmaid of architecture. He calls into consultation both landscape gardener and architect, and the fitness of the site, and of the architectural setting to the statue is discussed. This is the natural and orderly sequence, the sequence whereby a harmonious and impressive result is obtained, and the only reasonable method to pursue.

The setting of a statue should be considered as carefully as we consider the setting of a precious stone. The finest gem may be ruined by a clumsy or inartistic setting, and the noblest statue loses its dignity, repose and strength by inharmonious surroundings, whether they be of stone or shrubbery. We must give the closest thought to the placing of our outdoor statuary and monumental work. That some sad mistakes have been made in this regard should only urge us to seek for appropriate settings for the future. Washington might be called the grave-yard of sculpture's mistakes, for there the landscape gardener has not yet existed. It is not my province, nor have I room in this paper to dwell much on landscape gardening, and the order of public parks and squares. I am merely to consider the relation of a statue to its site, and how it may lose or gain by an appropriate or inappropriate setting.

In the last few years sculptors have come to realize the necessity of trying their works in plaster in the open air, upon the final sites they are intended to occupy, getting the effects before the statue has been finally cast in the unchangeable and often FATAL bronze. In Paris, it is not an uncommon thing to see a statue of an important work placed upon a temporary pedestal, directly over the site it is intended to adorn, and left there for months at a time, until public and artists have had an opportunity to judge of its fitness for the site and surroundings. This would seem to be the only safe method. In the flattering light of the studio, from which most statues so far in this country have passed too readily through the back door to the foundry, never seeing the light of common day, the sculptor has overlooked those grand effects which stand for nobility, and for the lack of which no amount of clever modeling or detail will atone.

Every well-equipped studio ought to have its great door, its track, and its modelling-stand on wheels, so that the work may be run out into the open, at different stages, and judged of fairly under heaven's light, under which it must finally stand. Let me say this much, however, about the public squares and parks, before I go into the more detailed part of pedestal and surroundings. I do not believe in surrounding with cobblestones the statue of bronze or granite upon a pedestal of stone. The whole mass and material conveys to the common mind a sense of hardness, and a

lack of human tenderness, and thereby loses the very import of the idea this age wishes to convey—the close inter-relationship of man. Especially in the small parks in the slums of our great cities should we take care that a bit of green sod or some graceful shrub and trees ante-date the man in stone. "Make haste slowly" is still an appropriate motto for the American. Fill your small parks or breathing spaces with as much green as you can put in them, and let there be a bench for the tired people to rest on and refresh heart and soul and body. Then you put them in tune for the loftier ideas conveyed by sculpture. The Salvation Army is quite right in giving the hungry people bread and coffee, before they try to instill the lessons of God. Let us be sane in all of our art movements, remembering that the Greeks were the sanest of all art people, and that their art was the direct product of that sanity. The park is the poor man's estate, and should be beautified on the one hand for his physical and moral comfort and on the other to fit it for the reception of works of art which shall serve to refine and elevate his senses. In other words, the street and park are the poor man's university.

There are, of course, exceptions to the procedure I have laid down. For instance, there are certain angles and corners which happen in great cities where stone work only is feasible. Yet here, too, the hardness of material and environment may be relieved by running water, as in the case of the fountain in the Piazz di Spagna in Rome, and in Paris of the Fontaine St. Michel. Then again there is the famous Mollere statue in the Rue Richelieu, where no water is used, and still an awkward corner is gracefully relieved and embellished.

But we cannot insist too strongly upon the use of natural adjuncts, because we find that the average municipal official seems to have an antipathy to a tree or a stretch of turf. Possibly his interest in asphaltting and paving contracts may account for this enmity. In any case, if we follow Bacon's advice in creating art, and add man to nature, let us at least see that they walk hand in hand.

Let us illustrate from American examples which are familiar to all—for instance, Daniel French's beautiful relief of "Death and the Sculptor" placed over the grave of Millmore in Forest Hill Cemetery in Boston. This originally had a beautiful setting, the bronze and the stone standing out against a background of dark evergreens, which has since been removed to make room for some architectural memorial, with lines entirely out of harmony with the French relief. In the same way one may criticize that striking relief of Robert Shaw by Augustus St. Gaudens lately placed on Boston Common facing the State House. The well known firm of architects who designed the setting of this memorial followed a plan that they had carried out for the Farragut statue by the same sculptor in Madison Square, New York. But we cannot believe they were wise in doing so. They have made a very dangerous experiment in isolating a relief, a form which art history has always treated in relation to some other more important memorial or building. In other words a relief is the pictured record of the life of some hero or event. In this case a man who served the state should have been placed, if treated in relief, upon some part of the State House or the relief should have been related to it structurally and not placed over against it. One does not like to think that Shaw and his brave soldiers were

merely facades of men, an impression that one naturally gets in walking around the relief. Much happier is the setting of the Farragut statue. There, at least, is a background of green and the statue faces the passer-by. But the wings of the pedestal are too high. They shut off from the beholder, as he approaches, too much of the background and could have been made lower with better artistic effect.

Professor Ware of Columbia has put the matter tersely when he says that, "in each case we must study and solve for ourselves the problem involved, and not copy servilely any foreign model that has some special *raison d'être* for existence on its native site."

As a rule, the sculptor must strive to throw his stone work against a dark green setting, gaining at once an effectiveness and subduing the hardness of his material. But before this, the first rule is that of common sense. One admires J. Q. A. Ward's Indian Hunter, in Central Park, because of the appropriate situation and historical suggestiveness. But one cannot help thinking that Alexander Hamilton, the founder of the financial system of the country, should have found a site on the Sub-Treasury steps rather than Washington, whose proper setting should be in some municipal building.

Art problems require as much thought as financial or legal puzzles. Emerson expressed it in two weighty lines: "Not from a vain or shallow thought His awful Jove young Phidias brought."

And Seneca, before him, had laid down the axiom: "No man or nation is ever wise by chance."

*Read before the fourth annual convention of the American Park and Outdoor Art Association by William Ordway Partridge, at Chicago, June 5-7, 1900.

Taxpayers' Association.

The German taxpayers of Cincinnati, several years ago, effected the organization of the "Taxpayers' Association." Its object, as stated in the constitution, is "to protect the interests of the real estate owners and taxpayers, by helping to secure suitable legislation, good city government and through that, moderate taxes and, also, to protect its members against dishonest tenants."

Members are required to pay an initiation fee of one dollar and annual dues of one dollar in advance. These payments entitle them to receive one dollar from the association for every case of forcible detainer tried before the justice of the association and thirty cents for a case that has been withdrawn, but it is provided that such cash benefits shall not exceed the sum of three dollars during any one year.

The association makes an agreement with a Justice of the Peace whereby the members can try suits for the removal of undesirable tenants at half the price charged elsewhere in the city.

These money considerations appealed strongly to the thrifty German element and it was not long before the membership was numbered by hundreds.

At first the membership was limited to Germans, but it was soon seen that the usefulness of the association could be augmented by opening the door to all property holders, regardless of nationality. Since that change was effected the strength of the organization has largely increased, and a secretary, Fred Tuke, has been chosen to devote his whole time to the interests of the association.

DEPARTMENT OF INQUIRY.

The Editor of "City Government" will undertake to furnish, through this department, replies to all inquiries pertaining to municipal affairs sent in by subscribers.

Qualifications of Meat and Milk Inspector.

Editor of "City Government:"

—, Pa., July 6, 1900.

Can you inform me what qualifications a man needs to fit him for meat and milk inspector? Also, what set of questions should be asked in an examination of candidates for the above office?

Dr. William C. Woodward, LL. M., Health Officer of Washington, D. C., replies to the above questions as follows:

QUALIFICATIONS OF A MEAT INSPECTOR.

1. A meat inspector should be not more than thirty-five years old at the time of his appointment.

Experience is the most valuable teacher in meat inspection; the older a man is at the time of his appointment the briefer, in the ordinary course of events, will be his period of service, and the less benefit will the city derive from the experience which he has acquired at its expense.

2. A meat inspector should be physically sound.

The duties of a meat inspector require him to be on his feet most of the time; to lift and to turn heavy pieces of meat; to be out in all kinds of weather; to go into and out of cold storage rooms during all seasons; and to get up and be at work, at times at least, before daylight. For these reasons he must have good general health. In addition, however, he should have good eyesight—or, at least, eyesight which can be brought to normal by means of glasses—and his hearing, smell, taste, and touch should be approximately perfect, so as to enable him to determine accurately the condition of meat and, if necessary, of live stock. Good health is necessary, too, to moral courage and endurance, and both are necessary to enable a meat inspector to discharge his duty conscientiously and to endure the rebuffs and insults which he is apt to meet in the course of his work, without losing his temper.

3. The use of intoxicating liquor or of tobacco discounts the value of the services of a meat inspector.

The odor of either whiskey or tobacco about the person of the inspector tends to make more difficult to detect odors arising from unsound meat. The inspector who accepts a drink or a cigar—and it is difficult for a man who indulges in such things always to refuse—is more likely to have his judgment warped than is the inspector who does not.

4. A meat inspector should be morally above suspicion.

The work of a meat inspector constantly exposes him to temptation; merchants who are willing to sell unwholesome food are usually not above bribing a food inspector if it is possible for them to do so. And the extraordinary power with which such inspectors are vested affords opportunities for blackmailing which they should be morally strong enough to resist. A meat inspector should have the respect and confidence of the entire community, even of the dealers whose meat he must condemn.

5. The general intellectual qualifications of a meat inspector should be above the average.

A meat inspector must know something besides meat. The question before him is not simply whether a given piece of meat is unsound, but whether he has legal authority to condemn it, and, if so, how he

shall proceed to exercise that authority. He must, therefore, be able to understand the laws governing meat inspection. And in order for him to do his work properly he must not only know unwholesome meat when he sees it but he must know also why it is unwholesome so that if called upon to testify in court he can defend the position he has taken. He must be able, too, to make an intelligible report covering any matter coming under his observation and requiring special attention or reference to some other department of the local government.

6. The special qualifications of a meat inspector are a theoretical and practical acquaintance with the diseases of animals used for food, with the changes which occur in the carcass after slaughter, and with the effect, if any, of such diseases and changes on the wholesomeness of the flesh.

Whether the above special qualifications are best found in veterinary surgeons or in butchers is an open question. They are not likely, however, to be found in persons who are neither. Generally speaking the salaries paid meat inspectors are too small to command the services of a first class veterinary surgeon, while they will secure first class butchers, and, *ceteris paribus*, a first class butcher, who will devote his entire time and energy to his work, is better than a second class veterinary surgeon, and even better than a first class veterinary surgeon who accepts a small salary and then regards his official duties as subordinate to his private practice.

EXAMINATION FOR MEAT INSPECTORS.

(NOTE. This should, of course, not replace a practical examination at the abattoir and in the market.)

1. Mention the general characteristics of healthy live stock.

2. Mention the characteristics of good meat as it appears in the market. What are the distinguishing features of meat which has spoiled so as to become unwholesome?

3. Mention the diseases of particular interest to the food inspector, which most commonly affect live stock, and state the particular kind or kinds of stock affected by each disease mentioned.

4. What is trichina spiralis? What is its life history? How would you proceed to detect it? What part, if any, of a carcass affected by it should be allowed to be sold?

5. What is tuberculosis? What species of live stock does it most commonly affect? How would you detect it?

6. State your opinion as to the effect of tuberculosis on the wholesomeness of the carcass affected, and give briefly the reasons for that opinion.

7. What is meant by "monkey" veal? What would determine your action with reference to the condemnation and seizure of such meat?

8. What is the liver-fluke? Where is it found? When, if ever, will its presence justify the condemnation and seizure of the entire carcass?

9. State briefly but accurately the principles of the law governing the inspection of food in this jurisdiction.

10. Assume that you are a food inspector and that upon visiting the store of Thomas Wilkins, a butcher, for the purpose of inspecting his stock you are refused admittance to his cold storage apartments. What action would you take to secure admittance? Write a report of the occurrence,

addressed to the "Health Commissioner," giving all of the essential facts and making such recommendations as you deem proper.

11. What are the characteristics of good poultry?

EXAMINATION FOR MILK INSPECTORS.

(NOTE. This should not replace a practical examination at the dairy farm and in the dairy.)

1. What are the characteristics of good whole milk?

2. Describe briefly the precautions to be taken in milking and in the preservation of the milk to secure the best results from a sanitary standpoint.

3. What is "colostrum?" Fore-milk? Strippings? Gargety milk?

4. Mention the principle causes which operate to render milk unwholesome.

5. What is the per cent. of fat, and of milk solids exclusive of fat, commonly required by law in whole milk? How much fat should a good grade of cream contain?

6. Name the adulterants most commonly found in milk and state the purpose for which each is used. What are the objections, if any, to the use of such adulterants?

7. Can typhoid fever be transmitted through milk? If so, how?

8. What is the lactometer? What are the principles upon which it depends? What precautions must be taken in its use to secure accurate results?

9. What precautions are necessary to secure a fair average sample of milk as it is offered for sale?

10. What are the causes of the souring of milk? What danger to the consumer of milk results from this change?

11. Outline briefly but accurately the law governing the production and sale of milk in this jurisdiction.

12. Assume that you are a milk inspector and that on visiting the dairy of Richard Wilson to secure a sample of milk he refuses either to sell or to give you such a sample. What action would you take? Write a brief report addressed to the Health Commissioner, of the occurrence, stating all of the essential facts and making such recommendations as you think proper.

Cost of Portable Repairing Asphalt Plant?

—, N. Y., July 17, 1900.

Editor of "City Government:"

Will you kindly inform me where I can obtain a description and the cost of a portable plant for repairing asphalt pavements, and, also, the cost of such repairs where it is done by the municipal officers?

E. R. CARY.

Here is another question for our readers to answer. Tell us what your practice may be.—[Editor of "City Government."]

What Cities Tax Telephones?

—, Cal., July 2, 1900.

Editor of "City Government:"

What cities charge a license tax on telephones, i. e., a stated price on each 'phone? Also, what cities impose a ground rent charge for the telegraph, telephone and electric poles set in the streets?

H. A. MASON.

The state of Ohio has recently passed a law which requires that each telephone throughout the state be placed upon the tax duplicate at a valuation of \$10. The state auditor estimates an income of \$4,500 from this source this year and that back taxes to the amount of \$23,000 will be collected.

Will our readers communicate with the Editor and inform him what the practice of their city may be?—[Editor of "City Government."]

Anti-Rotary Gong Ordinance.

Savannah, Ga., July 26, 1900.
Editor of "City Government":
Please note the attached clipping from your last issue. Enclosed I beg to hand you a copy of ordinance adopted by this city restricting the use of rotary gongs to the fire service only.

JOHN E. MAGUIRE,
Superintendent.

An ordinance to prevent the use of the rotary gong in the streets of the city of Savannah.

Whereas, the fire department of the city of Savannah uses, in order to give notice of the approach of its engines and vehicles, a gong known as the rotary gong, and it is important to prevent accidents to confine its use to the said department.

Section 1. Wherefore, it is ordained by the Mayor and aldermen of the city of Savannah, in Council assembled, That from and after the passage of this ordinance, it shall be unlawful for a street car or other company, or any person operating or using any vehicle in the city of Savannah and on the streets thereof, except the fire department, to use a rotary gong.

Sec. 2. Be it further ordained, That any company or person violating this ordinance shall be subject, on conviction before the Police Court of the city of Savannah, to a fine not to exceed twenty-five dollars and imprisonment not to exceed ten days, either or both, in the discretion of the court for each and every day's violation thereof.

Sec. 3. Be it further ordained that all ordinances and parts of ordinances in conflict with this ordinance are hereby repealed.

Wants Rates for Terminal Railroad Switching.

Wash., July 18, 1900.
Editor of "City Government":
Please give me a schedule of rates charged in cities for railroad terminal switching.

To explain; there is a franchise now pending before our City Council, granting a franchise to a terminal company in which the schedule of rates is as per enclosed clipping. It seems to me that the rates are unnecessarily high, and my desire is to get information as to the rates in other cities, as the rates here enclosed are at about \$1 or more per mile, with a minimum of \$1.50 for any distance whatever. Concede that in regard to the franchise in question the distance from the commencement to Virginia street is a half mile; from Virginia street to the terminal a half mile; from the commencement to Smiths Cove one and one-half miles; from the commencement to Ballard four and one-half miles; from the commencement to the Northern City limits seven miles; from Inter bay to Fremont two miles; from Inter-bay to Ballard two miles; from Smiths Cove to Fremont three miles. Our idea is to ascertain whether or not, as compared with other cities, these charges are fair or unreasonably high.

ALPHEUS BYERS, (Alderman).

To compare the schedule of prices for a given service in one city with those for a similar service in other cities is not always just or fair, because there may be local conditions which make the amounts greater or less, and such conditions would not appear in the printed rates. Therefore, relative conditions should be compared, as nearly as possible in detail before the settlement of a question like the above.

In the cities of Albany and Troy switching facilities are not of the best, because of the cramped limits of the railway yards and from the fact that several bridges are included within the limits. This would add to the difficulties of service and to the expense. The New York Central road in most of the cities through which it passes, has a charge of \$2 per car for all switching within the yard without regard to mileage. Special rates are charged when a car comes into a city over another line and goes out on its own, or vice versa. These special rates are higher or lower according to the degree of competition—the prices range from \$2 to \$10.

The rates for the Delaware & Hudson

road in Troy and Albany, in fact in most of the cities along the line, are the same, with the exception that all traffic to and from a city on its own lines is handled without extra charge for switching.

The Fitchburg railroad, it is reported, has a straight charge of thirty cents a ton. —[Editor of "City Government."]

To Civil and Sanitary Engineers.

As all engineers recognize the necessity of keeping a sewer system clean as a sanitary measure, I trust that a few suggestions in the premises will be acceptable.

No matter how well a sewer system may be designed and constructed it will not satisfactorily serve its purpose if any deposit is allowed to occur.

Do not wait until actual stoppage takes place but keep the system clean from the start. Experience has shown that this can only be done by periodic flushing either by hand or by automatic flush-tanks.

Hand flushing can only be depended upon when in charge of responsible, intelligent and untiring care-takers.

Automatic flush-tanks can always be depended upon to do their duty if engineers will only give sufficient thought to the matter to select a simple, reliable, efficient and durable siphon for the same, design them as to capacity according to the size and grade of the sewer and length of the line to be flushed, and see to it that they are properly constructed and made water-tight, and that the necessary instructions are given to the authorities having in charge the maintenance of the sewer system as to their proper handling and the amount of water to be used.

The greatest liability to deposit is found in the laterals, especially near the upper end where the flow of sewage is light, and at these ends flush-tanks of proper design should be placed.

In selecting the flushing appliances more than ordinary care should be used; select the device you know can be depended upon and insist upon its use.

Do not allow the contractors to furnish any flushing device they see fit, as they will invariably buy the cheapest, and a cheap device may prove a most expensive one in the end.

It matters not how rapid the rate of discharge may be from a flushing appliance, it can be of no value whatever unless the apparatus can be depended upon to operate continuously; consequently, although efficiency must be considered, it alone is insufficient, and reliability, therefore, must be first considered.

Now as to durability: A flushing apparatus may apparently work under all conditions, discharge at a very rapid rate, and continue to give perfect service for several months, but if, sooner or later, this apparatus ceases to do its proper work it will either have to be repaired, or replaced by another at great expense to the users.

Durability depends upon simplicity of construction, absence of moving parts and subsidiary devices.

If, then, you are able to find in the Miller Siphon, not only effectiveness, reliability, simplicity and durability, it is entitled to your consideration.

Should you be unacquainted with our Miller Siphon and have any doubts whatever as to its superiority as a flushing appliance, we will willingly send you one on trial, and if not as represented we will agree to take it out at our own expense.

We guarantee each one of our Miller Siphons absolutely. Sidney W. Miller, for Pacific Flush-Tank Company.

BOOKS REVIEWED.**PRIMER OF PARLIAMENTARY LAW.**

By Joseph T. Robert. 16mo., pp. X—264. \$1. Doubleday & McClure Co., N. Y.

This is just what its name indicates: a primer of parliamentary law. It is designed for the use of schools, colleges, clubs, fraternities, city officials, etc., and is arranged in twenty-four easy, progressive lessons, illustrating parliamentary law and practice. Every member of councils and other city official should own a copy, if he does not, to fit him to preside creditably to himself. It has a well classified index which makes it possible to turn to any point raised upon the shortest notice.

POLITICS AND ADMINISTRATION.

By Frank J. Goodnow, A. M., LL. D. 12mo., pp. XIII—270. \$1.50. The Macmillan Co., N. Y.

The first thing which commends this book to the reader, whether he may be interested in the subject treated or not, is its systematic treatment of the theme. The topical treatment of the table of contents together with the copious and carefully classified index which the book contains make one wish that Dr. Goodnow were the author of all works on these subjects.

The author wastes no words, even in his preface, but presents his ideas in a clean-cut manner which gives an added zest to the reader as he follows his argument from the beginning to the finish, as he attempts "to show, particularly from a consideration of political conditions as they now exist in the United States, that the formal governmental system as set forth in the law is not always the same as the actual system. The attempt is also made to indicate what changes in the formal system of the United States must be made, in order to make the actual system conform, more closely than it does at present, to the political ideas upon which the formal system is based." **GOVERNMENT OR HUMAN EVOLUTION.** By Edmond Kelly, M. A., F. G. S. 12mo., pp. XV—360. \$1.50. Longmans, Green & Co., N. Y.

In this work the author deals with the theoretical side of the broad subject of human government. In a later volume, "Individualism and Collectivism," he proposes to set forth the practical of the same broad theme. He rightly asserts that the theoretical and the practical are so closely united that they should go hand in hand. But he, also, recognizes the shortness of life and the lack of time at the disposal of the busy man and, therefore, promises to recapitulate the conclusions of this volume in the second, hoping thus to overcome the natural antipathy of the busy man to the consideration of theories. In passing, it might be well to drop a hint to the author, that he could enhance the value of the second volume to the majority of his readers by providing it with a copious and well classified index.

MONOPOLIES AND TRUSTS. By Richard T. Ely, Ph. D., LL. D. 12mo., pp. XI—278. \$1.25. The Macmillan Company, N. Y.

This volume is one of "The Citizen's Library" series, upon timely economic topics. It is a work created to supply the popular demand for information about monopolies and trusts. The author here gives expression to thoughts upon the subject, which were born long before the subject assumed tangible form in the public mind. Like all of the author's work, the subject is treated in a conscientious manner, is clear, forcible and conclusive. Either the student or the popular reader will find ample food for thought in this timely volume.

Municipal Matters Determined in Court.

Prepared for "City Government." The full text of any opinion cited under this caption can be obtained of City Government Publishing Company, Troy, N. Y., for twenty-five cents.

Liability For Unlawful Arrest by Police Officers.—A city is not liable for the tort of its police officers in making an unlawful arrest. *Bean vs. City of Middlesboro*, 57 S. W. Rep. (Ky.) 478.

Lien for Taxes.—Both under the general revenue law and under the charter of cities of the fourth class a lien exists on any and all property for any and all taxes due by its owner. *City of Middlesboro vs. Coal & Iron Bank et al.*, 57 S. W. Rep. (Ky.) 497.

Liability for Negligence of Firemen.—A city is not liable for an injury to a stock of goods by water, resulting from the negligence of its firemen in attempting to extinguish a fire. *Davis vs. City of Lebanon*, 57 S. W. Rep. (Ky.) 471.

Assessments on Abutting Property.—Town trustees, in making an assessment for street improvements, cannot assess each front foot of abutting property equally, irrespective of the benefits to each lot. *McKee et al vs. Town of Pendleton et al.*, 57 N. E. Rep. (Ind.) 532.

Creation of Fund.—Under the guise of paying the cost of constructing a pavement, a municipal corporation cannot collect a fund in advance, to be used at some indefinite time, for the repair and maintenance of such pavement. *State ex rel. Wheeler et al. vs. District Court of Ramsey County et al.*, 83 N. W. Rep. (Minn.) 183.

Municipal Corporations—Loan—Foreclosure.—The officials of a municipal corporation, in violation of law, loaned its money to a private person, taking as security a mortgage upon certain property. Held, that the city may evoke the powers of the courts to enforce collection of the debt by foreclosure proceedings. *City of Fergus Falls vs. Fergus Falls Hotel Co.*, 83 N. W. Rep. (Minn.) 54.

Removal of Snow and Ice—Notice.—Under an ordinance making it the duty of the street commissioner of a city to remove snow and ice that have remained on the sidewalks for six hours, the city is not chargeable with notice of accumulations of snow and ice on a sidewalk until six hours after the snow and ice have accumulated. *McAllister vs. City of Bridgeport*, 46 At. Rep. (Conn.) 553.

Defective Bridge Railing.—Where plaintiff was injured by falling from a bridge forming a part of a public street because of a defective railing against which he was leaning while conversing with another, such fact did not establish that he was using the street for the purpose for which it was constructed, since by such use he did per se forfeit the protection from injury enjoined on cities to keep their streets in proper repair. *City of Whitewright vs. Taylor*, 57 S. W. Rep. (Tex.) 311.

Mistake in Bid.—A mistake in the proposals by a bidder for a contract with a city, which is promptly declared by an agent of the bidder as soon as it is discovered and before the city has done anything to alter its conditions, will not bind the bidder by reason of a provision

in the city charter that a bid shall not be withdrawn or canceled until the board shall have let the contract. *Moffett, Hodgkins & Clarke Co. vs. City of Rochester, etc.*, 20 Sup. Ct. Rep. (U. S.) 957.

Lease of Building—Aggregate Rent—Debt Limit.—A lease of a building by a city, to be used as a city hall, does not create an indebtedness for the aggregate sum of all the annual payments of rent to become due; and hence, where it appears that the current revenues of the city will be amply sufficient to meet the accruing rent, such contract is not objectionable, though the city's constitutional debt limit has already been reached, and a complaint based on the theory that such contract is void for that reason is bad on demurrer. *City of South Bend et al. vs. Reynolds*, 57 N. E. Rep. (Ind.) 706.

Scavengers—City Ordinances—Reasonableness.—A city ordinance providing that all scavenger work of the city shall be done by licensed scavengers, fixing the time when closets must be cleaned and the charges for cleaning them, and giving the board of health power to decide who are competent bidders for this work, is in derogation of common right, and, in the absence of a showing that it is reasonably necessary and just, must be held invalid so far as it applies to a defendant prosecuted under it for cleaning a closet without a license as a scavenger. *State vs. Hill*, 36 S. E. Rep. (N. C.) 326.

Notice of Paving Assessments to Life Tenant.—Olean City Charter, Sec. 88, requires publication of a notice of paving assessments, and a day for their correction and provides that, after correction and confirmation, they shall become liens. Section 113 provides that notice to one tenant in common shall be notice to all. A paving assessment was levied against plaintiff, who was a life tenant of property abutting on the paved street. Held, that notice to plaintiff was not no-

tice to the remainder-men, since a life tenant is not a tenant in common with remainder-men, and hence the assessment was levied against plaintiff personally, and not against the remainder-men. *Chamberlain vs. Gleason et al.*, 57 N. E. Rep. (N. Y.) 487.

Control of Public Parks.—Mills' Ann. St. Sec. 4403, subd. 7, providing that municipalities shall have power to establish, alter, widen, extend, and vacate public parks and grounds, does not empower the city to authorize the construction of a county court house in one of its parks. The owners of land platted it into lots and blocks for city purposes, and reserved a block, which they did not plat into lots, and which they stated was reserved for public buildings and park purposes. The city accepted the dedication, and used the block for a park. Held, that the dedication did not authorize the construction thereon of a county court house, since the words "public buildings" will be deemed to refer solely to city buildings. *McIntyre et al. vs. Board of Com'rs of El Paso County et al.*, 61 Pac. Rep. (Colo.) 237.

Personal Injuries—Negligence—Master and Servant—City.—A city hired from an improvement company the use of a steam roller and engineer. The city had full control over the movements of the steam roller, and directed its engineer where to operate it. The company paid the salary of the engineer, and had the power to discharge him. The roller, being directed to operate where the ground was too soft to hold it up, sank in the mud, and the engineer, in a proper exercise of his duties, put on full steam, and extricated the roller from the mud. The steam then escaped with a loud noise, and frightened the horse of a traveler, who was permitted by the city's superintendent to approach without warning, injuring him. Held, that the city was liable therefore, and not the company. *Stewart vs. California Imp. Co. et al.*, 61 Pac. Rep. (Cal.) 280.

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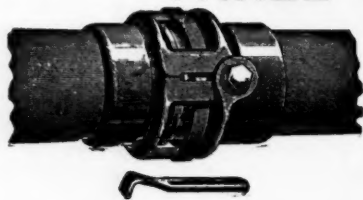
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- Electric controller. No. 653,087. Huff, Slaughter W., Baltimore, Md.
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- Street sweeper. No. 653,477. Improve Street Sweeper Co., Pittsburg, Pa.
- Automatic air valve for water main. No. 653,255. Loetzer, Christian E., Sayre, Pa.
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- Safety trolley. No. 653,402. Richmond, John W., Fishkill-on-the-Hudson, N. Y.
- Trolley. No. 653,316. Russell, William H., Watertown, Mass.
- Automatic railway gate. No. 654,085. Young, Charley H., Wilkenson, Wash.
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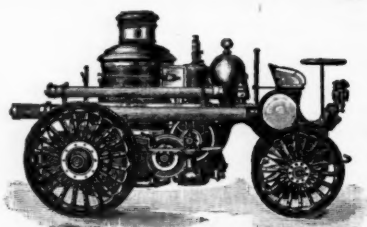
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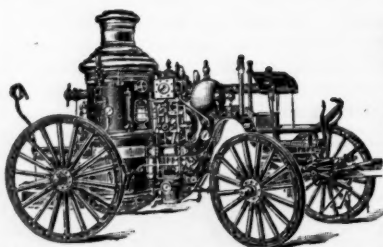
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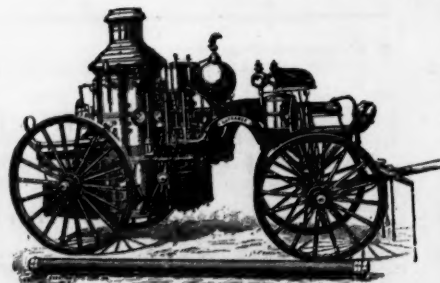
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